

CRESCENTA VALLEY WATER DISTRICT

**2700 Foothill Boulevard
La Crescenta, California**

**Agenda for the
Regular Meeting of the Board of Directors
of the Crescenta Valley Water District
to be held on Tuesday, November 14, 2023, at 7:00 p.m.**

Posted: Friday, November 10, 2023 at 7:00 p.m.

This meeting will be conducted in person at the address listed above. Members of the public may also participate virtually by using a touchtone phone. You may select any of the following phone numbers (there are more than one for increased reliability during this time of increased phone traffic)

(669) 900-6833

(346) 248-7799

(929) 205-6099

(253) 215-8782

(301) 715-8592

(312) 626-6799

Then, enter Access Code: 895 6969 8851

Those members of the public who are able to and would like to additionally participate through computer may access the Zoom audio & video conferencing tool available at the following link:

<https://us02web.zoom.us/j/89569698851>

If there is a disruption of service, this meeting will continue without remote participation. The remote participation option is provided as a convenience to the public and is not required.

Public comment may be made either by emailing comments ahead of the meeting or by speaking over the phone. Emailed comments will be sent to the Board of Directors prior to the meeting and posted on the District's website. Comments may be sent to customer service, at (818) 248-3925 or customerservice@cvwd.com by 3pm on November 14, 2023.

Any person may make a request for a disability-related modification or accommodation needed for that person to be able to participate in the public meeting by contacting the District by phone or in writing at the above email address. Requests must specify the nature of the disability and the type of accommodation requested. A telephone number or other contact information should be included so that District staff may discuss appropriate arrangements. Persons requesting a disability-related accommodation should make the request with adequate time before the meeting for the District to provide the requested accommodation.

Any written materials distributed to the Board in connection with this agenda will be made available at the same time for public inspection at the District office located at the above address and posted on the District's website.

Call to Order and Determination of Quorum

Pledge of Allegiance

Adoption of Agenda

Public Comments

At this time, the public shall have an opportunity to comment on any non-agenda item relevant to the subject matter jurisdiction of the Board. This opportunity is non-transferable, and speakers are limited to one three-minute (3) comment. Under the provisions of the Brown Act, the Board is prohibited from taking action on items not listed on the agenda, except under certain circumstances.

Foothill Municipal Water District Report

1. Report on activities at Foothill Municipal Water District.

Consent Calendar

1. Consideration and approval of the Minutes of the Adjourned Regular Board Meeting on October 24, 2023.
2. Ratification of Disbursements for October 2023.

Action Calendar

The public shall have an opportunity to comment on any action item as each item is considered by the Board. This opportunity is non-transferable, and speakers are limited to one two-minute (2) comment.

1. **Resolution No. 788** - Consideration and motion to adopt a Resolution No. 788 authorizing the expansion of the Bill Assistance Program.
2. **Resolution No. 789** - Consideration and possible motion to adopt Resolution No. 789 authorizing the creation of the District's Credit Card Policy.
3. **Annual Contract for Booster Pump Well rehabilitation, and Maintenances Services**
Consideration and motion to authorize the General Manager to award a contract to General Pump Company to provide services for booster pump and well rehabilitation, and pump and well maintenance at an estimated cost of \$356,100 and to find said projects be exempt from the provisions of the California Environmental Quality Act (CEQA).

Information Items

Written Communications to District/Board of Directors

General Manager's Report

Attorney Report

Reports of Committees

- Engineering Committee
- Finance Committee
- Employee Relations Committee
- Policy Committee
- Community Relations/Water Conservation Committee

- Emergency Planning Committee
- Technology Committee

Directors' Oral Reports – Reports on issues, meetings, or activities attended by Directors.

Board Members' Request for Future Agenda Items

Closed Session

Conference with Legal Counsel – Existing Litigation

(Paragraph (1) of subdivision (d) of Section 54956.9)

Name of case: *Plone Trust, et al. v. Kalousd Pandazos, et al.*, Los Angeles Superior Court Case No. 21STCV19845; and *Perry Lazar, et al. v. County of Los Angeles, et al.*, Los Angeles Superior Court Case No. 22STCV34822.

Adjournment



CRESCENTA VALLEY WATER DISTRICT
ADJOURNED REGULAR MEETING, BOARD OF DIRECTORS
October 24, 2023

Pursuant to the order of the Board of Directors of the Crescenta Valley Water District made at the Regular Meeting on October 10, 2023, an Adjourned Regular Meeting was held on October 10, 2023, at 7:00 p.m. at the District office at 2700 Foothill Blvd., La Crescenta, California and through audio and video conference. A call-in number was clearly noted on the meeting Agenda, posted in accordance with the Brown Act, with President Sharon Raghavachary presiding.

At roll call, the following Directors and staff members were present or online:

Directors:

James D. Bodnar
Kerry D. Erickson
Jeffery W. Johnson
Sharon S. Raghavachary
Judy L. Tejeda (absent)

Attorney:

Thomas Bunn

General Manager:

James Lee

**Interim Director of Engineering
and Operations:**

Brook Yared

Staff Members:

Tessa Allmon, Customer Service Lead
Patrick Atwater, Regulatory & Public Affairs Manager
Kellen Boyce, System Operations Manager
Arturo Montes, Finance & Administration Manager
Elias Sebhatu, Senior Engineer
Adam Sutphin, Senior Management Analyst
Darlene Telles, Operations & Maintenance Manager

Guests:

Frank Colcord, Foothill Municipal Water District

PLEDGE OF ALLEGIANCE

Mr. Atwater opened the meeting by leading the Directors and staff in reciting the Pledge of Allegiance.

ADOPTION OF AGENDA

It was moved by Director Bodnar, seconded by Director Johnson, and carried by a 4-0 vote that the Agenda for the Adjourned Regular Meeting of October 24, 2023, be adopted.

PUBLIC COMMENTS – None

FOOTHILL MUNICIPAL WATER DISTRICT REPORT – Mr. Colcord provided a slide presentation of information collected for the water year ending October 2023, showing the monthly water use vs. weather for the past five (5) years for Foothill Municipal Water District. Mr. Colcord also provided graphs of the cumulative local and imported water use by each of the seven (7) local agencies for 2022-23.

CONSENT CALENDAR

It was moved by Director Erickson, seconded by Director Bodnar, and carried by a 4-0 vote to approve the Minutes of the Regular Board Meeting held on October 10, 2023, and to ratify the disbursements for September 2023 which consisted of:

Payment of demands against the Crescenta Valley Water District on or before September 2023, the same having been approved by the General Manager, and heretofore paid, are to be ratified and approved subject to audit, in the aggregate sum of One-Million, Two-Hundred Eighty-Nine Thousand, Seven-Hundred Forty-Three Dollars and Sixty-Two Cents (\$1,289,743.62), which is composed of the individual items set forth herein.

ACTION CALENDAR

Recruitment for Board of Directors – Mr. Lee announced that Crescenta Valley Water District is in a position to begin the recruitment process for a replacement Board member due to the upcoming retirement of Director Judy Tejeda as of December 31, 2023. Mr. Lee stated that the Board agreed upon the recruitment of a new Board member to the Board of Directors and initiated the process through an Ad Hoc Committee at the October 10, 2023 Board meeting. Mr. Lee announced that the Ad Hoc Committee met on October 16, 2023 to review the public outreach plan, eligibility requirements, sample interview question for the Board member candidates, evaluation matrix/criteria for candidates, and interview and selection logistics. The Board of Directors agreed on verbiage for a “Notice of Recruitment for Board of Directors” to be placed on the CVWD website and in the CV Weekly Newspaper stating the eligibility requirements to become a CVWD Board member, desired attributes of Board members, and the typical board and committee meeting schedule. Mr. Lee stated that the CVWD Public Affairs Team announced the Board member vacancy and recruitment at the CV Town Council Meeting on October 19th and shared potential public outreach platforms to reach the community. The Board members agreed that a Statement of Interest must be received by all applicants by Friday, December 1, 2023 to be considered for the Board vacancy.

10-inch Water Main Replacement on the 3000-3100 Blocks of Montrose Ave., Project E-1067 – Mr. Yared stated that at the October 10, 2023 Board meeting, the Board authorized the General Manager to solicit bids and award a contract for the construction of 1,600 lineal feet of 12-inch pipeline to replace the existing 10-inch pipeline on the 3000 & 3100 Blocks of Montrose Ave. at a not-to-exceed cost of \$900,000. Of the bids that were received subsequently, \$1.17 million from Toro was the lowest responsible bid.

Following discussion:

It was moved by Director Bodnar, seconded by Director Johnson, and carried by a 4-0 vote to authorize the General Manager to award a contract to Toro Enterprises, Inc. for the construction of 1,600 lineal feet of 12-inch pipeline to replace the existing 10-inch pipeline on the 3000 & 3100 Blocks of Montrose Ave. at the cost of \$1.17M presented to the Board and include a contingency amount of

10% of the contract; to find the project exempt from CEQA; and to waive the requirement for formal competitive bidding as outlined in CVWD's Rules and Regulations, Article 18.01.

INFORMATION ITEMS – None

WRITTEN COMMUNICATIONS TO DISTRICT – None

GENERAL MANAGER – Mr. Lee announced that CVWD employees participated in the “Great Shake-Out” emergency preparedness tabletop exercise on October 19, 2023, and intends to continue partnering with local agencies moving forward. Mr. Lee shared that the Board of Directors and staff met at the La Crescenta Library on October 18th for a Public Engagement Workshop, which could represent a series of ongoing workshops in the future for various topics. Mr. Atwater and Director Erickson noted that they attended the CV Town Council Pancake Breakfast on October 21st. Mr. Montes provided highlights of the Administration & Finance Report, and Ms. Telles provided highlights of the Field Maintenance & Operation Report for the month of September 2023. Mr. Yared announced that the total rainfall for the Water Year ending September 2023 was 48.10”, and that the water production for the month of September 2023 was 105.6 MG representing a 49%/51% split. Mr. Yared provided detailed information for Capital Improvement Projects, AMI Customer Engagement Portal, SCADA System, Wastewater Master Plan, Grant Program and Developer Projects from the September Engineering Report.

ATTORNEY REPORT – Mr. Bunn presented original minutes from the Crescenta Mutual Water Company which was formed on August 9, 1920. Mr. Bunn noted that before the company was formed the original facilities had already been built, and at the first meeting 158 subscribers purchased 664 shares of the newly formed company at \$25 per share with a flat rate structure. Mr. Bunn said that in 1947, a discussion was held with four (4) local agencies proposing a connection to Metropolitan Water District and to form Foothill Municipal Water District (FMWD). The minutes ended in 1952 with Stanley Lagerlof suggesting that the board agree to a friendly condemnation by Crescenta Valley Water District.

REPORTS OF COMMITTEES

Engineering and Operations Committee – Director Erickson reported that the Committee had not met; however, a meeting is scheduled for November 8, 2023.

Finance Committee – Director Raghavachary reported that the Committee had not met; however, a meeting will be scheduled as needed.

Employee Relations Committee – Director Bodnar reported that the Committee had not met; however, a meeting will be scheduled as needed.

Policy Committee – Director Raghavachary reported that the Committee had met not met; however, a meeting will be scheduled as needed.

Community Relations/Water Conservation Committee – Director Raghavachary reported that the Committee had not met; however, a meeting will be scheduled as needed.

Emergency Planning Committee – Director Erickson reported that the Committee had not met; however, a meeting will be scheduled as needed.

Executive Committee – Director Raghavachary reported that the Committee had not met; however, a meeting will be scheduled as needed.

Technology Committee – Director Bodnar reported that the Committee had not met; however, a meeting will be scheduled as needed.

DIRECTORS' ORAL REPORTS

Director Bodnar – No report

Director Erickson – Reported that he attended the CV Town Council Pancake Breakfast and commented on reports of the possibility of an upcoming El Nino season.

Director Johnson – No report

Director Raghavachary – No report

Director Tejeda – Absent

BOARD MEMBERS REQUESTS FOR FUTURE AGENDA ITEMS –

CLOSED SESSION – No reportable action.

ADJOURNMENT

There being no other business to come before the Board, at 9:48 p.m., the meeting was adjourned to November 14, 2023, at 7:00 p.m.

APPROVED

Sharon S. Raghavachary
President

James Lee
General Manager

CASH DISBURSEMENT LIST

October 2023



<u>Check#</u>	<u>Check Date</u>	<u>Payable To</u>	<u>Description</u>	<u>Water Amount</u>	<u>Wastewater Amount</u>
0		Los Angeles County Public Works	Excavation permits	5,607.00	
0	10/11/2023	Colonial Life	Employee paid insurance	178.61	
0	10/27/2023	Shell	Purchased fuel - September 2023	4,979.25	1,262.48
0	10/10/2023	Southern California Edison	Purchased power - September 2023	45,610.07	901.16
0	10/25/2023	Southern California Edison	Purchased power - September 2023	10,145.17	200.44
0	10/18/2023	Aflac	Employee paid insurance - August 2023	813.62	
0	10/18/2023	Aflac	Employee paid insurance - September 2023	813.62	
0	10/20/2023	VSP	Vision coverage - September 2023	406.98	
0	10/30/2023	VSP	Vision coverage - October 2023	471.24	314.16
0	10/10/2023	One Ring	Glenwood/Office - data communication - October 2023	1,012.50	337.50
0	10/2/2323	CalPERS	PERS contributions - September 2023	29,630.72	9,876.91
46483	10/5/2023	Advanced Centrifugal Systems, Inc.	E-1067 - 3010 Montrose 10" main break welding	3,655.88	
46484	10/5/2023	Airgas USA, LLC	Well #2 - carbon dioxide rental tank - September 2023	16.87	5.63
46485	10/5/2023	American Reclamation, Inc.	Waste collection services - October 2023	77.17	25.73
46486	10/5/2023	Anawalt Lumber & Materials Co.	Judy Tejada Reservoir sign mounting materials	281.63	93.89
46487	10/5/2023	Association of CA Water Agencies	Erickson - ACWA Fall Conference registration	611.25	203.75
46488	10/5/2023	Bonnors Equipment Rentals	Employee dedication event	895.50	298.50
46489	10/5/2023	Campanile Group, Inc.	M-1061 - Consulting services - July/August 2023	1,500.00	
46490	10/5/2023	CCS Interactive, Inc.	Monthly web hosting/analytics report - October 2023	1,027.50	342.50
46491	10/5/2023	City of Glendale Finance Dept.	Watermaster cost sharing - April/May/June 2023	2,771.60	
46492	10/5/2023	Consolidated Electrical Distributors, Inc.	E-939 - SCADA equipment - September 2023	3,299.28	
46493	10/5/2023	Megan Cordero	Refund check - 3016 Henrietta	25.00	
46494	10/5/2023	Direct Connection	Door hangers - customer notifications	1,168.56	389.54
46495	10/5/2023	Luciano Ducherer	Refund check - 4119 Rincon	45.06	
46496	10/5/2023	DYI Home Center	Misc. supplies - September 2023	13.78	
46497	10/5/2023	Emins Air Conditioning & Heating	Office - A/C repair supplies - September 2023	112.50	37.50
46498	10/5/2023	Extreme Safety, Inc.	Safety glasses & supplies	377.64	395.84
46499	10/5/2023	Foothill Car Wash, Lube & Oil	Unit #59 - oil change	96.96	32.32
46500	10/5/2023	Rachel Gagliardi	Refund check - 5030 Rosemont	38.72	
46501	10/5/2023	General Pump Company, Inc.	E-1065 - Well rehabilitation & maintenance	95,988.11	
46502	10/5/2023	Grainger	Misc. safety supplies - September 2023	137.24	160.36
46503	10/5/2023	Haaker Equipment Company	Repair warthog-shaft seal, brass seats, seals, o-ring		1,140.93
46504	10/5/2023	Highroad Information Technology	Managed services, support, renewals & equipment - October 2023	9,831.75	3,277.25
46505	10/5/2023	Impact LA LLC	Copier supplies - September 2023	17.13	5.71
46506	10/5/2023	J. Vega Engineering, Inc.	E-1046 - progress payment #2	376,421.35	
46507	10/5/2023	Jay & J Janitorial Services	Janitorial services - October 2023	646.50	215.50

46508	10/5/2023	Joseph G. Pollard Co., Inc.	Misc. supplies - September 2023	113.82	5.60
46509	10/5/2023	Anna Judy De Torres	Refund check - 4421 Rosemont	28.25	
46510	10/5/2023	Christina Kopelman	Women in Water - mileage reimbursement	16.80	5.60
46511	10/5/2023	Koppl Pipeline Services, Inc.	Misc. parts & safety supplies - September 2023	830.00	
46512	10/5/2023	Michael Kouyoumojain	Refund check - 4617 Briggs	80.99	
46513	10/5/2023	Lawn & Construction Equipment Depot	Concrete cutter repairs - September 2023	203.67	67.89
46514	10/5/2023	Lincoln Financial Group	Life & Disability insurance - October 2023	782.92	388.88
46515	10/5/2023	Trang Mai	Refund check - 3822 Ocean View	49.00	
46516	10/5/2023	Thomas Musto	Refund check - 2930 Fairway #202	74.07	
46517	10/5/2023	Napa Auto Parts	Unit #35, #41, & #57 - batteries	809.27	
46518	10/5/2023	Office Depot	Misc. office supplies - September 2023	153.48	51.16
46519	10/5/2023	O'Reilly Auto Parts	Unit #2 - new battery	147.69	49.24
46520	10/5/2023	Paper Cuts, Inc.	Paper shredding services - September 2023	47.81	15.94
46521	10/5/2023	Minwoo Park	Refund check - 2745 Montrose #101	2.82	
46522	10/5/2023	Prohealth Glendale Medical Group	New employee physical	255.01	85.00
46523	10/5/2023	Quadient Finance USA, Inc.	Postage purchased - September 2023	562.05	187.36
46524	10/5/2023	Joseph & Caroline Ryznar	Refund check - 5612 Canyonside	54.45	
46525	10/5/2023	Diana Schulz	Refund check - 4430 Rosebank	12.56	
46526	10/5/2023	SoCal Gas	Office - gas purchased - September 2023	11.09	3.70
46527	10/5/2023	Sully-Miller Contracting Co.	Cold mix for temporary repairs - September 2023	1,870.23	
46528	10/5/2023	Tri-Xecutex Corp.	Security alarm monitoring - October, November, December 2023	162.00	54.00
46529	10/5/2023	United Concordia	Dental insurance - September 2023	2,968.98	1,287.52
46530	10/5/2023	Univar Solutions USA, Inc.	Sodium hypochloride - Glenwood (752 gal.) Mills (400 gals.)	5,219.68	
46531	10/5/2023	Water Resources Economics	Financial services - September 2023	724.99	241.67
46532	10/5/2023	Western Water Works	Stock - Main repair clamps, flanges and service brass	7,317.89	
46533	10/5/2023	Westlake Ace Hardware	Misc. supplies - September 2023	214.24	
46534	10/5/2023	Wheels In Motion	Unit #17 - repair choke knob & cable	438.11	
46535	10/5/2023	Jacob Whittaker	Reimbursement - work pants	68.97	
46536			*This check was voided		
46537	10/10/2023	City of Los Angeles	O & M portion of ASSSC - March 2023 - May 2023		464,744.00
46538	10/11/2023	American Water Works Assoc.	Annual membership renewal	1,754.25	584.75
46539	10/11/2023	Applied Technology Group, Inc.	E-939 - misc. supplies - September 2023	22.50	7.50
46540			*This check was voided		
46541	10/11/2023	Associated Soils Engineering	E-1046 - Field technician services - August 2023	3,750.00	
46542	10/11/2023	BSK Associates	Chloramine conversion & water testing - September 2023	16,893.23	
46543	10/11/2023	City of Glendale	Rockhaven lease & water purchased - September 2023	10,734.48	
46544			*This check was voided		
46545			*This check was voided		
46546	10/11/2023	Raymond Dodge	E-939 - reimbursement - September 2023	308.27	
46547	10/11/2023	Foothill Municipal Water	Water purchased & GIS consulting - September 2023	319,190.96	
46548	10/11/2023	Pete Hilke	AWWA Conference - mileage reimbursement	54.04	18.01
46549	10/11/2023	Lagerlof, LLP	Legal services - September 2023	18,708.00	6,236.00
46550	10/11/2023	Public Water Agencies Group	Monthly PWAG assessment - October 2023	1,379.06	459.69
46551	10/11/2023	Red Wing Business Advantage	Esclaera, Fritz,& Velasquez - Safety work boots	369.18	123.06

46552	10/11/2023	Spectrum Business	Lowell - data communications - September 2023	2,861.79	953.94
46553	10/11/2023	Univar Solutions USA, Inc.	*This check was voided		
46554	10/17/2023	ARC	Plotter supplies - September 2023	106.35	35.45
46555	10/17/2023	Regino Avalos	Landscaping services @ 7 sites & tree trimming - September 2023	3,534.03	195.97
46556	10/17/2023	Consolidated Electrical Distributors, Inc.	E-939 - SCADA equipment & booster maintenance - September 2023	31,058.12	
46557	10/19/2023	Jennifer Bautista	AWWA Fall Conference 2023 - mileage reimbursement	434.60	144.88
46558	10/19/2023	Arturo Montes	Public Engagement Workshop - reimbursement	102.75	34.25
46559	10/25/2023	ACC Ramco	Mixed bobtail - September 2023	1,726.26	
46560	10/25/2023	ADS, LLC	Sewer flow monitoring - September 2023		1,187.00
46561	10/25/2023	Airgas USA, LLC	Well #2 - carbon dioxide rental tank - September 2023	16.58	5.53
46562	10/25/2023	Anawalt Lumber & Materials Co.	Misc. supplies - September 2023	22.01	
46563	10/25/2023	Ancon Marine	Rosemont Bridge - confined space entry	1,451.25	483.75
46564	10/25/2023	Ansell Health Care Products, LLC	Safety supplies - September 2023	663.83	221.28
46565	10/25/2023	Anser Advisory Management, LLC	E-1046 - Inspections services - September 2023	12,441.00	
46566	10/25/2023	Associated Soils Engineering	E-1046 - Field technician services - September 2023	670.00	
46567	10/25/2023	Regino Avalos	Markridge reservoir - clear/dispose of dead trees & brush	3,760.00	
46568	10/25/2023	Coastline Equipment Co.	Forklift - Maintenance & repairs	3,184.52	1,061.50
46569	10/25/2023	Consolidated Electrical Distributors, Inc.	E-939 - misc. supplies - September 2023	559.15	
46570	10/25/2023	Morgen Durose	Veteran's Tribute	93.75	31.25
46571	10/25/2023	Grace Environmental	Nitrate Plant monitoring assistance - July 2023	731.46	
46572	10/25/2023	Grainger	Misc. supplies - September 2023	88.57	29.52
46573	10/25/2023	Harper & Associates Eng, Inc.	E-1066 - Engineerng consulting services (Goss Canyon rehab) - September 2023	6,480.00	
46574	10/25/2023	Highroad Information Technology	Computer hardware updated equipment	5,050.10	1,683.36
46575	10/25/2023	InfoSend, Inc.	Printing & postage for billing - September 2023	2,074.24	691.41
46576	10/25/2023	John Robinson Consulting, Inc.	M-965 - Consulting services - September 2023	2,640.00	
46577	10/25/2023	Kennedy Jenks	M-1037A - Consulting services - September 2023		2,911.25
46578	10/25/2023	LA Dept Water and Power	Power purchased - October 2023	48.40	
46579	10/25/2023	New Pig Corp.	Misc. supplies - September 2023	348.53	116.18
46580	10/25/2023	Office Depot	Misc. office supplies - October 2023	46.40	15.47
46581	10/25/2023	O'Reilly Auto Parts	Misc. supplies - September 2023	98.41	32.81
46582	10/25/2023	Staplermania Staplermania	Misc. tools & supplies - September 2023	132.29	44.10
46583	10/25/2023	Tesco Controls, Inc.	Annual service contract renewal - July 2023 - June 2024	7,000.00	
46584	10/25/2023	Univar Solutions USA, Inc.	Sodium Hypochloride - Glenwood (1970 gals.) Mills (800 gals.)	12,529.95	
46585	10/25/2023	UPS	Misc. shipping charges - September 2023	39.12	13.04
46586	10/25/2023	Western Water Works	plastic pipe 2" (class 160)	4,664.70	
46587	10/25/2023	Yardley Orgill Company, Inc.	Stock - 1 1/2" and 2" service brass, corp stop 2 FIP	7,907.84	

Subtotals

\$ 1,107,676.57 \$504,026.11

Total Disbursements for October 2023

\$ 1,611,702.68

Payroll Report

Directors	2,000.00
Office Regular payroll	136,442.00
Office OT	4,403.00
Plant Regular Payroll	118,231.00
Plant OT & Standby	14,067.00
Employer Payroll Taxes	19,105.00
Payroll Service Charge	466.00
Total Payroll Charges for October 2023	<u>\$ 294,714.00</u>

CRESCENTA VALLEY WATER DISTRICT

BOARD OF DIRECTORS - STAFF REPORT

Action Item No. 1
November 14, 2023

To: Honorable President and Members of the Board of Directors
From: Arturo Montes, Finance and Administration Manager
Subject: **Resolution No. 788 – Expanded Bill Assistance Program**

ACTION ITEM:

Consideration and motion to adopt Resolution No. 788 to expand the District's Bill Assistance Program.

BACKGROUND:

In August, staff presented the Finance Committee with alternatives to adjust the District's Bill Assistance Program to better support customer needs. Currently, the program offers a 20% discount on water and wastewater bills for qualifying customers. The District budgets \$150K for this program, and on average \$47K in discounts are applied for. This program must be funded from non-rate revenues such as rental income, investment income, account fees, etc. Based on the recent implementation of the capital charge on the property roll, the District committed to updating its program to also assist those who may be significantly impacted by the additional charge, supporting affordability for essential use, one of the District's policy priorities.

The Committee directed staff to present an expanded Bill Assistance Program that would reflect: 1) higher income limits for qualification; 2) an increased discount factor; and 3) the inclusion of the recently implemented capital charge within the bill assistance program. Staff presented the Finance Committee with a program including these updates at the October 9, 2023, Finance Committee meeting. Following discussion, the Finance Committee directed staff to present the Policy Committee with an expanded Bill Assistance program that incorporated the following changes–

1. *Amendment 1:* Increase the income levels from 200% of the Federal Poverty Guidelines to 250%;
2. *Amendment 2:* Increase current assistance from a 20% to a 25% discount on the combined bill for water, wastewater, and/or wastewater standby charges; and
3. *Amendment 3:* Include a discount of 25% of the capital charge for owner-occupied accounts that meet program qualifications.

The Policy Committee met on November 8, 2023, and following discussion directed staff to present the policy as written to the Board.

DISCUSSION:

Staff has analyzed current data available and summarized the potential budget impacts of amending the Bill Assistance program. In total, staff projects a minimum increase of \$28K to the District's expense budget, which leaves adequate room for additional subscriptions to the program:

1. *Amendment 1:* The effect on the budget is unknown based on current data;
2. *Amendment 2:* Increasing from 20% to 25% will result in an increase of approximately \$12k based on current enrollment in the Bill Assistance Program; the actual impact may be higher with higher income levels; and

3. *Amendment 3*: If all current enrollees of the Bill Assistance Program who are also owners are provided a 25% discount on the capital charge ($\$196 * 25\% = \44), then an estimated \$8K of credits would be applied to their bills.

RECOMMENDATION

Adopt Resolution No. 788 authorizing the expansion of the District's Bill Assistance Program.

Prepared and Submitted by:



Arturo Montes
Finance & Administration Manager

Attachment(s):

1. Section 8.03.E of the District's Rules and Regulations has been updated to reflect the changes listed above. The original copy is redlined for ease of reference.
2. The Bill Assistance Program application is also updated, also redlined for ease of reference.
3. Resolution No. 788 – Bill Assistance Program

Low-Income Discount Bill Assistance Program: A ~~low-income~~ residential customer of the District who resides on the property and who ~~has been~~ is the named account holder on the records of the District ~~for the prior six months~~ is may be eligible for a 2025 percent discount on the combined bill for water, wastewater and/or wastewater standby charges on the capital charge if they meet the qualifications below:

1. ~~"Low-income" means~~ The customer must meets either of the following conditions, which are modeled after Southern California Edison's CARE program to qualify for the Bill Assistance Program.

- a. The customer or any dependent member of the household receives benefits from any of the following programs (must provide proof)
 - Bureau of Indian Affairs General Assistance
 - CalFresh (Food Stamps)
 - CalWORKs (TANF)/ Tribal TANF
 - Head Start Income Eligible (Tribal Only)
 - CARE Program (Gas Company)
 - Low Income Home Energy Assistance Program (LIFEAP)
 - Medi-Cal/Medicaid
 - Medi-Cal for Families
 - National School Lunch Program
 - California Lifeline (Phone Company)
 - Supplemental Security Income (SSI)
 - Women, Infants & Children (WIC)
- b. Total income for all members in the household meets the guidelines listed below. "Income" means all income received in the prior calendar year, including but not limited to social security, interest income, salaries, wages, pensions, rents, commissions, and capital gains. Proof of total household income includes federal and state income tax returns for the prior year, or if no tax return was filed, other proof of total household income satisfactory to the District.

Household Size	Income Eligibility Upper Limit
1-2	\$39,440 <u>49,300</u>
3	\$49,720 <u>62,150</u>
4	\$60,000 <u>75,000</u>
5	\$70,280 <u>87,850</u>
6	\$80,560 <u>100,700</u>
7	\$90,840 <u>113,550</u>
8	\$101,120 <u>126,400</u>
Each Additional Person	\$10,280 <u>12,850</u>

* Information is based on federal poverty guidelines and updated annually on July 1.

2. The discount becomes effective for the first full billing period following approval of an application in a form prescribed by the District. Applicants must sign the form under penalty of perjury and must furnish proof of eligibility as listed above.
3. Decisions on any questions concerning eligibility for the discount shall be made by the General Manager. Applicants shall have the right to appeal adverse determinations to the Board of Directors. Appeals shall be in writing and delivered to the District within 10 days following the General Manager's decision.
4. Once an application is approved, the Customer shall receive ~~a 20 percent~~ the eligible discount on future bills as long as the Customer continues to be eligible. The ~~2025~~ percent discount applies to wastewater charges, all service charges, and the first 26 billing units of water per billing cycle, ~~and~~ to the capital charge assessed in November and March. Usage over 26 billing units of water per billing cycle will be billed at standard rate. It shall be the duty of the Customer to advise the District if the Customer becomes ineligible for the discount. The Customer must reapply for the discount every two years to retain eligibility.
5. This program may be modified without prior notice. When the program is modified, current program recipients will remain eligible until the time of their recertification. During the recertification process, the customer's eligibility will be based on current requirements at the time of recertification.
6. This program is on a first-come-first-serve basis limited to annual budgeted funding.
 - a. When funding limits have been reached, applicants will be placed on a waiting list based on the order in which applications were received. If the program is closed due to funding limits, current members will be notified of recertification requirements and due dates. If a customer does not recertify within the allotted time, they will need to reapply and join the waiting list.



CVWD BILL ASSISTANCE PROGRAM

For Fiscal Year 2023-24

Attachment 2

☐ First Time Applicant ☐ Reapply (required every 2 years)

1. CUSTOMER INFORMATION

Account Name:

Address:

Email Address:

CVWD Account Number:

Daytime Contact Name:

Phone: ()

2. OTHER RESIDENTS LIVING IN THE HOME

Name:

Age:

Name:

Age:

Name:

Age:

Name:

Age:

Name:

Age:

3. PUBLIC ASSISTANCE PROGRAMS BENEFITS RECEIVED

If you or ~~someone in your household~~ one of your dependents receives benefits from any of the programs listed below, please check the box and **provide a current** copy of your **Verification of Benefits Letter or other proof** of enrollment for programs checked. If you checked one of the boxes below, **Skip section 4 & 5 and go to Section 6.**

☐ Medi-Cal/Medicaid

☐ Medi-Cal for Families

☐ CalFresh (Food Stamps)

☐ WIC

☐ CalWORKs (TANF)

☐ CARE Program (SoCalGas)

☐ Bureau of Indian Affairs G.A.

☐ LIHEAP

☐ SSI

☐ California Lifeline (phone)

☐ National School Lunch Program (NSLP)

If NONE of the above apply to you, please complete section 4 below.

4. SOURCE OF INCOME (Skip if you completed Section 3)

Please check the appropriate box for all sources of income for all persons in your household and **provide copies of current documents** for all sources checked below. Read page 2 for more information.

☐ SSA, SSP, SSDI

☐ Wages or Salaries

☐ Interest, Dividends, Annuities

☐ Pensions

☐ Unemployment Benefits

☐ Rental or Royalty Income

☐ Family Support

☐ Workers Compensation

☐ Profit and Loss Statement

☐ Spousal or Child Support

☐ Scholarships, Grants

☐ Cash or other income

5. HOUSEHOLD INCOME (Please fill in the total household income)

The total number of ~~residents living~~ persons in my ~~home~~ family/household, including myself is:

The total gross annual household income is:

\$

INCOME ELIGIBILITY GUIDELINES

Number of Household Members	Maximum Gross Annual Income
1-2	\$39,440 \$49,300
3	\$49,720 \$62,150
4	\$60,000 \$75,000

6. DECLARATION (Please read and sign below)

I certify under penalty of perjury that the information I have provided is true and correct. I agree to inform CVWD within 30 days if I no longer qualify to receive the discount. I understand that if I received this discount without qualifying for it, I may be required to pay back the discount I received.

CVWD CUSTOMER SIGNATURE

Date

CVWD BILL ASSISTANCE INFORMATION SHEET

CVWD 's Bill Assistance Program provides low-income households a ~~20~~ 25 percent discount on the combined bill for water (up to 26 billing units of water), wastewater and/or wastewater standby charges, and on the capital charge. There are two ways to qualify for the discount: If you receive any of the Public Assistance Programs listed in the application or if your total income for all persons in your household meets the income eligibility guidelines chart. The discount will be applied once your completed and signed application is approved by CVWD. Please allow at least 30 days for processing your application.

CONDITIONS FOR PARTICIPATING

- ~~• Applicant must be the primary account holder and have been on the account for six months~~
- Name on CVWD account must match the name on this application and must be a full time household resident.
- You must not be claimed as a dependent on another person's income tax return.
- You must re-certify when requested.
- You must reapply and provide Verification of Benefits Letter each time you move.
- You must provide current documentation or your application will not be processed.

CURRENT SOURCE OF INCOME & PUBLIC ASSISTANCE INFORMATION

Provide copy of your **current Verification of Benefits Letter** for Medi-cal, CalFresh, CalWORKs (TANF). These forms are available from the Department of Public Social Services (DPSS) at (818)701-8200.

WIC- Provide current verification of WIC Participation letter.

CARE Program (SoCalGas) - Provide copy of current first page of gas bill that shows Care Program discount.

California Lifeline (Telephone) - Provide current first page of California Lifeline bill that shows the discount.

Medi-Cal for Families - Provide a current Medi-Cal statement.

LIHEAP - Provide current approval letter for the program.

National School Lunch Program (NSLP) - Provide current document showing your enrollment in the program.

SSI and/or SSA - Provide a document showing your current monthly benefit amount with current address from the Social Security Administration. You can request the letter by contacting Social Security Office at (800) 772-1213.

Pension, Annuity, Scholarship, Grant, Rental or Royalty Income- Provide current copy of your statement.

Wages or Salaries - Provide most recent four consecutive pay stubs. You may provide a letter from your employer stating your monthly gross income. We can also accept tax returns/forms and bank statements.

Unemployment Benefits - Provide a copy of the first page of the unemployment letter from the Employment Development Department (EDD).

Zero Income - Provide Verification of Benefits Letter indicating zero income from the Department of Public Social Services(DPSS). If you are over the age of fifty, please contact the Social Security Office to obtain a Zero Income letter.

Cash and other income - Provide a letter from your employer stating your current monthly gross income if you receive cash.

This program may be modified without prior notice. When the program is modified, current program recipients will remain eligible until the time of their recertification. During the recertification process, the customer's eligibility will be based on current requirements at the time of recertification.

This program is on a first-come-first-serve basis limited to annual budgeted funding. When funding limits have been reached, applicants will be placed on a waiting list based on the order in which applications were received.

Please email application and copies of supporting documents to customerservice@CVWD.com or mail to:

Crescenta Valley Water District
2700 Foothill Blvd.
La Crescenta, CA 91214
(818) 248-3925
www.cvwd.com

RESOLUTION NO. 788

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CRESCENTA VALLEY WATER DISTRICT TO AMEND SECTION 8 OF THE RULES AND REGULATIONS – BILL ASSISTANCE PROGRAM

WHEREAS; the Crescenta Valley Water District is a county water district empowered under the Water Code to fix rates and charges for its water service;

WHEREAS; the Board maintains a bill assistance program to qualifying customers to support the affordability of water for essential use. The bill assistance program is funded using revenue sources other than water rates and charges.

WHEREAS; the Board wishes to amend the policy, so the bill assistance is expanded to increase the income levels from 200% of the Federal Poverty Guidelines to 250%; increase current assistance from a 20% to a 25% discount on the combined bill for water, wastewater, and/or wastewater standby charges; and include a discount of 25% of the capital charge for owner-occupied accounts that meet program qualifications.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Crescenta Valley Water District amends Section 8.03E of the rules and regulations – Bill Assistance Program to read as follows:

Bill Assistance Program: A residential customer of the District who resides on the property and who is the named account holder on the records of the District may be eligible for a 25 percent discount on the combined bill for water, wastewater and/or wastewater standby charges on the capital charge if they meet the qualifications below

1. The customer must meet either of the following conditions, which are modeled after Southern California Edison's CARE program to qualify for the Bill Assistance Program.
 - a. The customer or any dependent member of the household receives benefits from any of the following programs (must provide proof)
 - Bureau of Indian Affairs General Assistance
 - CalFresh (Food Stamps)
 - CalWORKs (TANF)/ Tribal TANF
 - Head Start Income Eligible (Tribal Only)
 - CARE Program (Gas Company)
 - Low Income Home Energy Assistance Program (LIFEAP)
 - Medi-Cal/Medicaid
 - Medi-Cal for Families
 - National School Lunch Program
 - California Lifeline (Phone Company)
 - Supplemental Security Income (SSI)
 - Women, Infants & Children (WIC)

- b. Total income for all members in the household meets the guidelines listed below. "Income" means all income received in the prior calendar year, including but not limited to social security, interest income, salaries, wages, pensions, rents, commissions, and capital gains. Proof of total household income includes federal and state income tax returns for the prior year, or if no tax return was filed, other proof of total household income satisfactory to the District.

Household Size	Income Eligibility Upper Limit
1-2	\$49,300
3	\$62,150
4	\$75,000
5	\$87,850
6	\$100,700
7	\$113,550
8	\$126,400
Each Additional Person	\$12,850

* Information is based on federal poverty guidelines and updated annually on July 1.

2. The discount becomes effective for the first full billing period following approval of an application in a form prescribed by the District. Applicants must sign the form under penalty of perjury and must furnish proof of eligibility as listed above.
3. Decisions on any questions concerning eligibility for the discount shall be made by the General Manager. Applicants shall have the right to appeal adverse determinations to the Board of Directors. Appeals shall be in writing and delivered to the District within 10 days following the General Manager's decision.
4. Once an application is approved, the Customer shall receive the eligible discount on future bills as long as the Customer continues to be eligible. The 25 percent discount applies to wastewater charges, all service charges, and the first 26 billing units of water per billing cycle (representing the first two of three tiers), and to the capital charge assessed in November/December and March/April of each year. Usage over 26 billing units of water per billing cycle will be billed at the standard rate. It shall be the duty of the Customer to advise the District if the Customer becomes ineligible for the discount. The Customer must reapply for the discount every two years to retain eligibility.
5. This program may be modified without prior notice. When the program is modified, current program recipients will remain eligible until the time of their recertification. During the recertification process, the customer's eligibility will be based on current requirements at the time of recertification.
6. This program is on a first-come-first-served basis limited to annual budgeted funding.
 - a. When funding limits have been reached, applicants will be placed on a waiting list based on the order in which applications were received. If the program is closed due to funding limits, current members will be notified of recertification

requirements and due dates. If a customer does not recertify within the allotted time, they will need to reapply and join the waiting list.

PASSED, APPROVED AND ADOPTED at a Regular Meeting of the Board of Directors of Crescenta Valley Water District held on November 14, 2023. Resolution No. 788 was adopted by the following vote:

AYES:

NOES: **None**

ATTEST:

**President, Board of Directors
Crescenta Valley Water District**

Secretary of the Board of Directors

STATE OF CALIFORNIA)
)
COUNTY OF LOS ANGELES) ss.

I, James K. Lee, Secretary to the Board of the Crescenta Valley Water District, DO
HEREBY CERTIFY that the foregoing is a full, true and correct copy of Resolution No. 788 of
the Board of Directors of Crescenta Valley Water District adopted at a Regular Meeting held on
November 14, 2023 and that the same has not been amended or repealed.

Secretary of the Board of Directors

Crescenta Valley Water District

DATED: November 14, 2023

(S E A L)

CRESCENTA VALLEY WATER DISTRICT

BOARD OF DIRECTORS - STAFF REPORT

Action Item No. 2
November 14, 2023

To: Honorable President and Members of the Board of Directors
From: Arturo Montes, Finance and Administration Manager
Subject: **Resolution No. 789 – District Credit Card Policy**

ACTION ITEM:

Consideration and motion to adopt a Resolution No. 789 authorizing the creation of the District's Credit Card Policy.

BACKGROUND:

The District uses credit cards to facilitate purchases, streamline payments, and earn cash-back discounts. BMO Purchasing Cards are used by the District to earn cash back on all purchases and services, including payment of invoices. The District also uses merchant credit cards if the rewards offered are greater than those of BMO Purchasing Cards.

Best practices recommend that agencies establish policies that have three major components. A credit card policy should dictate who in the agency will oversee the credit card program, who can use the credit cards, and what purchases can or cannot be made with the credit cards.

At the Policy Committee meeting held on November 7, 2023 staff presented the committee with a draft policy and associated missing receipt form. After discussing the committee directed staff to present the policy to the board.

DISCUSSION:

The goal of this policy is to establish a set of guidelines by which the District's credit cards can be used. The policy includes many standards used as best practices by other governmental agencies, including the State of CA. The Director of Finance and Administration will be the administrator of the credit card program and will be responsible for upholding these policies. A few of the highlighted provisions of the policy include:

1. The cards should only be used for official district business and forbid personal purchases;
2. The policy also forbids the use of credit cards for items such as alcohol, controlled substances, and tobacco products; and
3. The policy establishes reporting guidelines including requirements for lost receipts.

Staff has created the draft Credit Card policy attached in Resolution No. 789 for the Board's review.

RECOMMENDATION

Adopt Resolution No. 789 authorizing the creation of the District Credit Card Policy.

Prepared and Submitted by:



Arturo Montes
Finance & Administration Manager

Attachment(s): 1) Resolution No. 789 Credit Card Policy

RESOLUTION NO. 789

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CRESCENTA VALLEY WATER DISTRICT TO CREATE APPENDIX V OF THE RULES AND REGULATIONS – CREDIT CARD POLICY

WHEREAS; The District periodically reviews its policies to reflect best practices, current business procedures, and evaluates internal controls;

WHEREAS; The Board wishes to create a Credit Card Policy to establish the issuance, accounting, monitoring, retrieval, and general oversight of the credit card use policy for the District;

WHEREAS; Credit cards are provided to key staff members as a matter of convenience to facilitate the payment of expenses incurred for District business purposes only;

WHEREAS; District credit cards are not to be used for personal purchases of any kind.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Crescenta Valley Water District authorizes the creation of Appendix V of the District's Rules and Regulations – Credit Card Policy and to read as follows:

Credit Card Policy: In the course of its business operations, the Crescenta Valley Water District may provide certain employees with a credit card as needed according to position responsibilities. The credit card is to be used exclusively for District business. These credit cards are not to be used for personal purchases of any kind. Violations of this policy will result in the loss of the privilege of having a credit card, and discipline up to and including termination. To ensure proper fiscal accountability, the following rules have been established for employee use of credit cards.

1. The Director of Finance and Administration is designated to be responsible for the District's credit card issuance, accounting, monitoring, retrieval, and general oversight of compliance with this credit card use policy.
2. Cardholders will be required to sign the Credit Card Policy, indicating that they accept the terms of this policy and thereby agreeing to abide by the adopted District Credit Card Policy. The cardholder is responsible for assuring that all credit card charges are accurate and consistent with policy guidelines.
3. Use of the card may be delegated to staff within the same department as the assigned employee under the department manager's approval.
4. District credit cards may be used only by those authorized and only for the purchase of goods or services for the official business of the District. District credit cards may not be used for personal purchases.

5. MAXIMUM INDIVIDUAL EXPENDITURE: District credit cards may be used for individual purchases up to \$5,000. Purchases exceeding this amount must have advance approval from the Director of Finance and Administration before incurring the expenditure.
6. Purchases made via the credit card must comply with the District's policies. Credit cards should not be used to circumvent the normal system of internal controls.
7. Items that cannot be purchased with a District credit card include:
 - Cash advances;
 - Alcoholic beverages;
 - Tobacco/ Marijuana/ Vape products; and
 - Controlled Substances;
8. All rewards or points earned from purchases made for District business on District credit cards will be the property of the District and may only be redeemed for District business needs.
9. For travel expenses, the Credit Card issued by the District should be used..
10. All authorized users of District credit cards shall submit documentation detailing the goods or services purchased, the cost of the goods or services, the date of the purchase, and the official business for which it was purchased.
11. If a receipt for a credit card purchase is lost, a missing-receipt form must be completed and submitted to the Director of Finance and Administration.
12. It is the policy of the District that payments should be processed in a timely manner so as not to incur late fees or finance charges.
13. Upon employee separation or termination of employment, that employee shall immediately return the credit card to the Director of Finance and Administration. The Director of Finance and Administration will immediately cancel the card with the issuer.
14. An authorized employee who is issued a credit card is responsible for its protection and custody and shall immediately notify the bank card issuer, his/her supervisor, and the Director of Finance and Administration if the credit card is lost or stolen.
15. Finance and Administration will follow established Accounts Payable internal control procedures for approval, documentation, and payment of credit card charges.
16. The Director of Finance and Administration may close the credit card account if a cardholder separates from District employment, moves to a new position in which a credit card is not required, the cardholder fails to provide the required receipts and supporting documentation in a timely manner resulting in late fees, or the cardholder does not adhere to District policies and procedures.
17. Unauthorized use of a District credit card shall result in disciplinary measures to the fullest extent of the law.

18. EXCEPTIONS: No exception may be made to this policy without the written consent of the Director of Finance and Administration.

I have received and read this policy and agree to comply with its terms.

Signature

Date



Crescenta Valley Water District Missing Receipt Form

The cardholder/ Approving official must fill out form below:

Date of Purchase/Service: _____

Cardholder Name: _____

Supplier Name: _____

Description of Purchase: _____

Quantity Purchased: _____

Dollar Amount: _____

Reason for Inability to
Obtain Receipt: _____

Cardholder:

Signature: _____

Date: _____

This form should only be used occasionally. Excessive use of this form may result in loss of the employee's corporate credit card privileges.

Approved:

Director of Finance and Administration

Date: _____

Created November 2023

PASSED, APPROVED AND ADOPTED at a Regular Meeting of the Board of Directors of Crescenta Valley Water District held on November 14, 2023. Resolution No. 789 was adopted by the following vote:

AYES:

NOES:

None

ATTEST:

**President, Board of Directors
Crescenta Valley Water District**

Secretary of the Board of Directors

STATE OF CALIFORNIA)
)
COUNTY OF LOS ANGELES) ss.

I, James K. Lee, Secretary to the Board of the Crescenta Valley Water District, DO
HEREBY CERTIFY that the foregoing is a full, true and correct copy of Resolution No. 789 of
the Board of Directors of Crescenta Valley Water District adopted at a Regular Meeting held on
November 14, 2023 and that the same has not been amended or repealed.

Secretary of the Board of Directors

Crescenta Valley Water District

DATED: November 14, 2023

(S E A L)

CRESCENTA VALLEY WATER DISTRICT

BOARD OF DIRECTORS - STAFF REPORT

Action Item No. 3

November 14, 2023

To: Honorable President and Members of the Board of Directors
From: Brook Yared, M.S., P.E. – Interim Director of Engineering & Operations
Subject: **Award of Contract - Annual Contract for Booster Pump, Well Capital Improvement, and Maintenance Services**

ACTION ITEM:

Annual Contract for Booster Pump, Well Rehabilitation, and Maintenance Services – Consideration and motion to authorize the General Manager to award a contract to General Pump Company to provide services for booster pump and well rehabilitation, and pump and well maintenance at an estimated cost of \$356,100 and find said projects be exempt from the provisions of the California Environment Quality Act (CEQA).

BACKGROUND:

CVWD has twelve (12) groundwater wells with pumps and thirty-four (34) booster pumps to access and transport local water supplies from the Verdugo Basin and lower pressure zones to reservoirs in higher-pressure zones, which are necessary to provide water throughout our diverse terrain. As staff prepared the annual Capital Improvement Project (CIP) program, projects are included for the replacement and rehabilitation of at least one well and at least one booster pump per year.

A goal of CVWD's strategic plan is for CVWD to become proactive on pump maintenance instead of being reactive when a pump or motor fails. Another goal of CVWD's strategic plan is to have contractors available to provide emergency services during a man-made or natural emergency event. A great concern of staff is that, if an emergency event happens, contractors (not under contract) may not be available, as they will be serving other agencies experiencing the same or similar disaster.

To meet this goal, in FY 22/23 CVWD partnered with General Pump Company in an annual contract to provide the services described herein, including on-call inspection, analysis, and reporting on all CVWD's wells, pumps, and motors and emergency response services for wells and booster pumps.

DISCUSSION:

During the September 8, 2023, Engineering Committee meeting, the pursuit to renewal CVWD's annual contract with General Pump Company was recommended. Staff developed a request for proposals (RFP) for FY 23/24 to renew the annual contract for Booster Pump and Well CIP, and Maintenance services. The RFP details the limits of work for well rehabilitation, booster pump maintenance and replacement services, including emergency services and annual pump and motor maintenance. General Pump Company provided a proposal on October 4, 2023, which included cost estimates for booster pump improvements for Mills Boosters A and B, located at the Mills Plant on 3246 Mills Ave, and well rehabilitation of Well 14, located at the southwest corner of the La Crescenta Ave and Sycamore Ave intersection.

Please note that the rehabilitation of Well 14 is already in progress as the pump failed earlier this year in July, and the estimate provided for Well 14 is a duplicate estimate of that which was presented in the July 25, 2023, Board of Directors meeting and was authorized for emergency rehabilitation under the FY 22/23 annual contract with General Pump Company. No additional well rehabilitations are planned for FY 23/24, and the funding for the emergency rehabilitation will be sourced from the FY 23/24 CIP budget.

Additionally, Paschall B (Booster 17) booster pump experienced an emergency failure and was pulled and taken out of service on August 2, 2023, by GPC. A temporary submersible booster pump has been installed at Paschall B while a new vertical turbine pump and motor assembly is in the process of procurement. The rehabilitation of Paschall B booster pump will replace the rehabilitation of Mills B within the FY 23/24 CIP budget.

COST SUMMARY:

A summary of costs based on quotes recently submitted by general pump in response to our request for proposal are provided below:

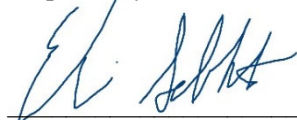
Id No.	FY 23/24 Booster Pump and Well Emergency and Maintenance Services	Estimated Annual Cost
1	Well Rehabilitation (CIP)	\$129,900
2	Booster Pump Rehabilitation (CIP)	\$145,200
3	Annual Booster Pump Inspection and Maintenance Service (Expense)	\$66,000
4	Emergency Pump & Motor Services (Expense)	\$15,000
	FY 23/24 Total	\$356,100

This brings the cost for the Annual Contract for Booster Pump and Well Rehabilitation, Emergency Response, and Maintenance Services in FY 23/24 to \$356,100, which is \$15,100 above the estimate amount for CIP of \$341,000 provided to the Engineering Committee on September 8th. Well rehabilitation costs came in at approximately \$20,000 lower but cost savings were offset by increased booster replacement costs for the emergency failure at Paschall B due to the new discharge head being provided and the rental pump installation and use. This cost difference may be avoided if there are no emergency repairs that are needed in this fiscal year. Staff will bring proposals to the Board regarding changes to the scope of work with budget updates as they arise.

RECOMMENDATION:

Staff recommends that the Board of Directors authorize the General Manager to award a contract to General Pump Company to provide services for booster pump and well rehabilitation, emergency response, and pump and well maintenance at an estimated initial cost of \$356,100. As well as authorize the General Manager to engage in emergency services with General Pump Company under this contract as long as it does not exceed the amount budgeted for in FY 23/24 without prior Board approval.

Prepared by:



Elias Sebhatu, P.E.
Senior Engineer

Submitted by:



Brook Yared, M.S., P.E.
Interim Director of Engineering & Operations

Attachments:

1. General Pump Company's proposal dated October 5, 2023
2. General Pump Company's cost estimate for installation of temporary submersible pump at Paschall B
3. General Pump Company's cost estimate for installation of new vertical turbine pump at Paschall B



159 N. ACACIA STREET * SAN DIMAS, CA 91773
PHONE: (909) 599-9606 * FAX: (909) 599-6238

CAMARILLO, CA 93010 * PHONE: (805) 482-1215
www.genpump.com

WELL & PUMP SERVICE SINCE 1952

Lic. #496765

Serving Southern California and Central Coast

Request for Proposal

FY 23/24 ANNUAL WELL AND PUMP MAINTENANCE & EMERGENCY SERVICES

October 10th , 2023 @ 12:00 pm

Prepared by:

**Luis Busso
General Pump Company, Inc.**

For The

**Crescenta Valley Water District
2700 Foothill Blvd
La Crescenta, CA 91214**



159 N. ACACIA STREET * SAN DIMAS, CA 91773
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WELL & PUMP SERVICE SINCE 1952

Lic. #496765

Serving Southern California and Central Coast

October 4, 2023

Crescent Valley Water District
Attn. Brook Yared

RFP – Crescenta Valley Water District – Annual Well and Pump Maintenance – Due October 10, 2023

General Pump Company, Inc. is pleased to submit the above referenced RFP regarding the well and pump maintenance services for Crescenta Valley Water District (CVWD). General Pump has reviewed all elements of this RFP and is in full agreement to perform the required services in connection with the District's distribution system.

CVWD and General Pump have developed a trust and partnership for over thirty-five (35) years. Our detailed records we have on file regarding the District's wells and pumps have critical information that we use to evaluate any issues that may occur. Our knowledge of the site constraints also makes it possible for General Pump to respond to the District's needs faster and with better efficiency than any other company.

Although our qualifications exceed that of our local competitors, our costs are also lower. General Pump's San Dimas Office is located approximately twenty (25) miles east of CVWD's office. We also have a second facility in Camarillo to take care of servicing your water needs. It is slightly farther but has some advantages regarding traffic. Not only can we be on site prepared to fix any pump or well issue quicker due to our knowledge of the District's water system, but we also have less than half of the travel time as compared to our competitors. Reduced travel will result in a 20% to 30% savings for the District.

Attached for your review is our Statement of Qualifications, which describe our services we have provided to cities and water districts throughout Southern & Central California for over seventy (70) years. General Pump Company is the **only well & pump service company in Southern California** that has a staff of experienced civil mechanical engineers and registered geologist who are *specialized* and are 100% dedicated to well and pump service. Our geologist is located only ten (10) minutes from the District's office. Unlike many of our competitors whose primary focus is on drilling new wells, General Pump's only focus is on pump engineering service and well rehabilitation. The ***No Cost Engineering and Geologist*** work can save the District **thousands of dollars per project**.

General Pump has more Maintenance Contracts with the cities and water districts than all our competitors combined in the Southern California region.

No two wells in the world are identical. Water quality, ground water geology, depths, construction materials, age, drilling techniques, aquifer water levels, and usage, all make water wells a challenge for redevelopment and repairs. General Pump's professional staff spends a lot of time researching and testing to help come up with possible solutions. The construction cost of a new well and the equipment needed to produce water is in the millions of dollars. The largest power users in many Cities are the pumping systems that keep the water and sewers systems working. An inefficient well or pump can cost the District millions of dollars over its life in addition power cost. Reliability is also a key concern.

General Pump has been inventing new ways to repair existing wells, design new types of pumps, and redevelopment wells for many years. These new technologies are taught to the Cities and Consultants primarily through large seminars. Cities, Water Districts, Industrial, Agricultural, and Private Water Companies also work directly with General Pump Company's staff and technicians to resolve issues. Innovation, expertise, and our special equipment is another reason why General Pump Company is different than any other Well and Pump Engineering Service Company.



General Pump Company is one of the few Contractors that hold all of the **REQUIRED** license classifications: Engineering A, C61, D21, and C57. General Pump Company considers our Maintenance Contracts as our highest priority. These Contracts are more than just an agreement, but instead a promise to assist the District on being successful in maintaining a reliable cost-effective pumping system.

General Pump has the most complete pump repair facility in Southern California. Most companies send equipment out to other vendors to machine and repair the pump. We not only manufacture most of the pump parts in-house, but also manufactures parts for other pump companies. We are the **only** manufacturer of the ***GPC Water Flush Deep Well Turbine Pump***. This is the fastest growing deep well turbine pump in Southern California. These well pumps out-perform the standard water lube pumps and do not require oil for line shaft bearing lubrication.

General Pump is certified by Byron Jackson pumps (Flowserve) to install and repair these special submersible pumps. There are only two (2) companies approved by the factory to work on these pumps.

General Pump Company is the most experienced and qualified Contractor in the world with the use of **AirBurst®**, which has been determined to be one of the most effective well development process invented in the past twenty (20) years. General Pump is also the most experienced Contractor in the world when it comes to the use of Well Klean® products. Other manufacturers have attempted to copy the formula over the past twenty-seven (27) years but have not been successful. Well Klean® chemicals have been used to clean our Navy's ships, District distribution pipelines, and water wells all over the U.S. for over twenty-five (25) years.

The "Groundwater & Wells" is the most read and used well and pump book in the world. Johnson Screens asked General Pump Company to assist in writing the technical pump section for this 3rd Edition, which was published in 2007. The first Edition was published in 1962.

Contacts:

Michael Bodart

President / Director of Engineering
Office: 909-599-9609
Cell: 909-721-2554
mbodart@genpump.com

Luis Busso

Senior Project Geologist
Office: 805-482-1215
Cell: 805-504-7381
lbusso@genpump.com



159 N. ACACIA STREET • SAN DIMAS, CA 91773
PHONE: (909) 599-9606 • FAX: (909) 599-6238

CAMARILLO, CA 93010 • PHONE: (805) 482-1215
www.genpump.com

WELL & PUMP SERVICE SINCE 1952

Serving Southern California and Central Coast

Lic. #496765

STANDARD AND DISCOUNTED RATES

(Effective October 01, 2023)

	Standard Rate	CVWD Disc. Rate 10%
3-Man Crew & Standard Pump Pulling Rig.....	\$595.00 / Hr	\$536.00 / Hr
1 Operator & 40-Ton Crane	\$399.00 / Hr	\$359.00 / Hr
1-Man Crew, Service Support Rig for the 40-Ton Crane	\$189.00 / Hr	\$170.00 / Hr
2-Man Crew & Combination Rig.....	\$449.00 / Hr	\$404.00 / Hr
2-Man Crew & Standard Pump Pulling Rig.....	\$425.00 / Hr	\$383.00 / Hr
Wire Brush or Swab Rental (Nylon Brush NOT included).....	\$950.00 Each	\$855.00 Each
Flatbed Truck & Driver.....	\$185.00 / Hr	\$167.00 / Hr
Rotary Crane (up to 17-ton) & 1-Man Crew.....	\$285.00 / Hr	\$257.00 / Hr
Rotary Crane & 2-Man Crew	\$399.00 / Hr	\$359.00 / Hr
Service Truck & 1 Pump Mechanic, Electrician or General Services	\$185.00 / Hr	\$167.00 / Hr
Service Truck & 1 Pump Mechanic & Helper	\$319.00 / Hr	\$257.00 / Hr
Pipeline Fabricator	\$189.00 / Hr	\$170.00 / Hr
Shop Labor – Pump Mechanic	\$114.00 / Hr	\$103.00 / Hr
Shop Labor – Machinist or Welder.....	\$114.00 / Hr	\$103.00 / Hr
Overtime & Saturdays.....	Add \$60.00 per Man Hour	\$54.00 / Man Hr
Sundays & Holidays.....	Add \$120.00 per Man Hour	\$108.00 / Man Hr
Control & Instrument Specialist.....	\$192.00 / Hr	\$173.00 / Hr
Additional Helper.....	\$120.00 / Hr	\$108.00 / Hr
Video Log – Color with Downhole and Side-Scan.....	\$1,290.00 per DVD	\$1,161.00 / DVD
Re-Video Log – Color with Downhole and Side-Scan	\$1,190.00 per DVD	\$1,071.00 / DVD
Dynamic Video with Mini Camera	\$1,950.00 per DVD	\$1,755.00 / DVD
Test Pump – Above 300-Hp Drive/ Generator.....	\$340.00 / Hr	\$306.00 / Hr
Test Pump – Below 300-Hp Drive/ Generator.....	\$295.00 / Hr	\$266.00 / Hr
1-Man Crew & Chemical Distribution Trailer, with Safety Equipment	\$299.00 / Hr	\$269.00 / Hr
Engineering and Hydrogeology Support.....	Per Job Basis	Per Job Basis

RATES DO NOT INCLUDE SECURITY OR PORTA POTTIES

FIELD RATES ARE PORTAL TO PORTAL

For additional information on *General Pump Company, Inc.*

Or to speak with one of our qualified Engineers,
please contact us at: engineering@genpump.com



CONTRACTORS
STATE LICENSE BOARD
ACTIVE LICENSE



License Number **496765**

Entity **CORP**

Business Name **GENERAL PUMP COMPANY INC**

Classification(s) **C57 C61/D21 A**



Expiration Date **08/31/2024**

www.cslb.ca.gov

Contractor Information

Registration History

Legal Entity Name

GENERAL PUMP COMPANY, INC.

Legal Entity Type

Corporation

Status

Active

Registration Number

1000002769

Registration effective date

7/1/2023

Registration expiration date

6/30/2026

Mailing Address

159 N. ACACIA ST. SAN DIMAS 91773 CA United...

Physical Address

159 N. ACACIA ST. SAN DIMAS 91773 CA United...

Email Address
Trade Name/DBA
License Number(s)

CSLB:496765

Effective Date
Expiration Date

5/30/2018

6/30/2019

5/24/2017

6/30/2018

6/2/2016

6/30/2017

7/2/2015

6/30/2016

11/13/2014

6/30/2015

7/1/2019

6/30/2022

7/1/2022

6/30/2023

7/1/2023

6/30/2026

Legal Entity Information

Corporation Number:
Federal Employment Identification Number:
President Name:

Mike Bodart

Vice President Name:

N/A

Treasurer Name:

Mike Bodart

Secretary Name:

Ginger Campbell

CEO Name:

Peter Brooks

Agent of Service Name:

Michael Warady

Agent of Service Mailing Address:

360 E 2ND STREET SUITE 800 Los Angeles 90012 CA United States of America

Workers Compensation

Do you lease employees No
through Professional

Employer Organization
(PEO)?:

Please provide your
current workers
compensation insurance
information below:

	PEO	PEO	PEO
PEO Information	Name	Phone	Email

Insured by Carrier
Policy Holder Name:General Pump Company, Inc.**Insurance Carrier:**
TRAVELERS PROPERTY CASUALTY INSURANCE COMPANY**Policy Number:**UB-8T705197
Inception date:8/31/2022**Expiration Date:**8/31/2023

STATEMENT OF QUALIFICATIONS

CAPABILITIES

General Pump Company, Inc. is a professional well redevelopment and pump equipment contractor located in San Dimas and Camarillo, California. The Engineering staff, field support and service crews, and office support staff are 100% dedicated to well evaluation and rehabilitation, and pump equipment evaluation and services.

The technical staff at General Pump Company, Inc. have worked in almost every aspect of the well and pump industries. This diverse experience provided us with unique qualifications to serve our customers and provide them with solution-oriented approaches to get their system back into operation. Our engineers and hydrogeologist have all worked in the drilling and design segment of the water, and/or oil and gas industries, and many of our shop and support technicians have worked for major pump manufactures.

General Pump Company, Inc. employs only experienced engineers, hydrogeologist and technical field personnel that can offer Customers assistance in the following areas:

- Assess well yields to minimize operating and maintenance costs
- Determine the efficiency of production and ASR wells and pumps
- Engineered pump and well equipment
- Pump facility design and construction / booster facility design and construction
- Pipeline design and construction
- Appropriate mechanical and chemical redevelopment
- Periodic monitor and maintenance programs
- Water quality and production solutions / well system optimization
- Engineered pump suction
- Pump and motor repair / custom pump design and machining
- Electrical, SCADA and transducer support
- Casing repair and swedging
- Video and geophysical logging support

General Pump Company, Inc., an Engineering Service Company, is dedicated to supporting the ongoing needs of the Water Industry, and committed to providing:

- Solution-oriented engineering using problem-solving techniques by degreed Engineers with diverse well system and groundwater experience, and pump application engineers from major pump manufacturing companies.
- Full-time machine shop, staffed with experienced personnel capable of building and repairing standard and custom pump equipment and specialty products.
- Self-contained chemical trailers to include safety support and operational controls.
- Trained and certified operators for periodic monitoring and maintenance programs.
- In-house training facility and training programs for customers and our own personnel.
- Strong project and construction management for any size project.
- Instant communications with cellular radio/phones for all staff, engineering, technical, field and shop personnel, resulting in better services at a reduced risk and overall cost.
- Modern, safe and reliable equipment with the **only telescoping well rigs with spudders** in the industry which are required for effective redevelopment of wells in pump houses.

SAFETY

Safety is paramount when men and equipment are involved. A good safety record is important along with adequate insurance and bonding. General Pump Company, Inc. has the best safety record in Southern California for the water well and pump rehabilitation business. Over the past years, General Pump Company, Inc. has had minimal loss of time for work related injuries

ANNUAL CONTRACTS

Award of an Annual Contract is a great honor and to have an Annual Contract renewed year after year is the greatest complement to a service company. It proves that the contractor has met or exceeded the customers' set goals and



ANNUAL CONTRACTS (Continued)

expectations. General Pump Company, Inc. has been selected by over 45 cities in Southern California to maintain their well and pumping systems. We have more Annual Contracts with cities than all our competitors combined. Additionally, General Pump Company, Inc. is the primary contractor or sole-source contractor for 15 private utilities and water districts. Most of these are multi-year contracts having been renewed several times over.

MACHINE SHOP CAPABILITIES

General Pump Company, Inc. is the only well and pump service company in Southern California that builds 100% of our bowl assemblies. This level of expertise, along with our in-house machining, allows us to supply or repair with a greater level of knowledge that your pump equipment will be reliable and efficient.

Our repair and fabrication facility maintains the most complete line of lathes, welding, and associated machining tools.

General Pump Company, Inc. has an expansive repair and fabrication facility. This facility has proven to be invaluable during our 70+ years of business, since many pump and motor repairs require a strong interface between machining, welding and electrical support in order to be completed. We have three major groups within our repair and fabrication facility that allow us to serve your needs in a variety of ways:

- **Fabrication and Machining:** Including lathes, milling machines, grinders, balancing machines, flame welding, gas and electric welding, heli-arc, etc. We perform welding on steel, aluminum, brass, cast iron, resurfacing, and custom work.

We repair all types of pumps by all manufacturers in our facility up to approximately 24-inch impeller diameter for single and multi-stage horizontal pumps and 30-inch diameter for vertical turbine pumps.

- **Assembly:** In general, the pumps we supply are designed and manufactured by General Pump Company at one of our engineering service centers. Assembly of pumps assures the highest quality product, with the assurance that it is built correctly and will meet the design criteria specified.
- **Field Services:** This service has helped us establish ourselves as well and pump problem solvers since many operational problems can be traced to poor installation practices. Having the proper diagnostic equipment and knowing how to use it distinguishes us as "The Leader in Well and Pump Services".

Precision Alignment - We've invested in the latest precision alignment technology and have established a growing list of customers who use us for these services.

Removal, Installation, Mechanical and Startup - We perform field-testing, removal, installation and machining services to offer a turnkey pump service.

General Pump Company, Inc. can provide you with high quality workmanship to meet your water supply needs. Our highly skilled employees can also perform repairs on many types of well and booster pumps.

Pump Repair

Booster
End Suction
Horizontal Split Case
Vertical Turbine
Right-Angle Drive

Machine Shop

Shaft Manufactured:

Pumps & Motors, Precision
Straightening, Electrical Motors

Sleeves Made:

Bronze, Mild Steel, Stainless
Steel

Threads and Tapping

Impeller Rebuilding

Balancing, Trimmed
Eyes & Flanges
High Temperature

Mechanical Seals

Re-Machine Seat, High
Pressure, High
Shaft Repaired Upgrades

Electric Motors

New & Overhauled, Rewound,
Balanced, Custom Bases,



EQUIPMENT AND FIELD SERVICE

General Pump Company, Inc. maintains a full-service machine shop, clean and safe rigs and cranes are a minimum requirement for reliability, quality workmanship and safety.

General Pump Company, Inc. has several trucks fully loaded with essential equipment to handle many urgent repairs in the field. Our well and pump service crews are always ready and willing to assist your water utility with making a repair to keep your well and booster facilities running. Just let us know and we will be on the way, ready to provide you with the highest quality service available.

General Pump Company, Inc. has the newest fleet of rigs and equipment in Southern California. Maintenance and repairs are made at our San Dimas and Camarillo Facilities to make sure our field operations can safely and efficiently respond to our customer's needs. Below are the benefits to our customers.

- Reliable work - In water emergencies, it is important that this large equipment is ready to respond without breakdowns.
- Safety - Our new equipment is not likely to malfunction resulting in major damage or possible injuries.
- The most up-to-date equipment to assemble the Customers' pumps.

General Pump Company, Inc. has chemical treatment equipment with fully operational safety equipment that includes eyewash and shower, along with other special redevelopment tools, which allow General Pump Company, Inc. to perform the most cost-effective cleaning to your wells.

PROFESSIONAL REFERENCES

Because of **General Pump Company's** long history in Southern California (over 70 years), we have selected eight (8) cities as references. As we described above in our Proposal, **General Pump Company, Inc.** has been selected by 45 cities in Southern California to maintain their well and pumping systems. Upon your request, we can submit additional cities or additional information on other annual contracts.

City of Arcadia – John Corona	626-254-2711
<u>Annual Contract</u>	2003 – Present
City of Pasadena – Michele Carina	626-744-7012
<u>Annual Contract</u>	1982- Present
City of Orange – Son Tran	714-288-2497
<u>Annual Contract</u>	1997 - Present
City of Westminster – Scott Miller	714-895-2876
<u>Annual Contract</u>	1995 - Present
City of Santa Monica – Gary Richinick	310 826-6712
<u>Annual Contract</u>	1979 - Present
City of Glendora – Ron Nichka	626-852-4866
<u>Annual Contract</u>	2002 - Present
City of Chino Hills – Steve Setlak	909-364-2806
<u>Annual Contract</u>	1999 – Present
City of Huntington Beach – Chris Cassotta	714-374-1511
<u>Annual Contract</u>	2000 – Present

Please let us know if you would like contacting names and phone numbers for other General Pump Company, Inc. customers or annual contract holders. We can also supply you with a list of Engineering Companies that we consult with and who regularly contract directly with General Pump Company, Inc.



159 N. ACACIA STREET * SAN DIMAS, CA 91773
PHONE: (909) 599-9606 * FAX: (909) 599-6238

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www.genpump.com

WELL & PUMP SERVICE SINCE 1952

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Well Preventative Maintenance References

<u>Client References</u>	<u>Project</u>	<u>Work Description</u>	<u>Period</u>	<u>Project Funding per Year</u>
City of Arcadia 240 W. Huntington Drive Arcadia, CA 91066 Contact: John Corona Ofc: 626-254-2711	Well & Booster Preventative Maintenance	Well & Booster Preventative Maintenance	Current	\$150,000.00
City of Glendora 116 E. Foothill Blvd. Glendora, CA 91740 Contact: Ron Nichka Ofc: 626-914-8200	Well & Booster Maintenance	Well & Booster Preventative Maintenance	Current	\$200,000.00
City of Santa Monica 1228 South Bundy Drive Los Angeles, CA 90025 Contact: Gary Rickinick Ofc: 310-458-8411	Water Well & Pump Maintenance	Water Well & Pump Maintenance	Current	\$400,000.00
City of Orange 189 South Water Street Orange, CA 92866 Contact: Son Tran Ofc: 714-288-2497	Well Maintenance and Repairs	Well Maintenance and Repairs	Current	\$400,000.00
City of Monterey Park 2657 N. Delta Avenue Rosemead, CA 91770 Contact: Ron Bow Ofc: 626-307-1255	Well & Booster Maintenance	Well & Booster Preventative Maintenance	Current	\$400,000.00
General Pump Company has over 45 Annual Maintenance Contracts in Southern California, more than all our competitors combined. GPC also holds Annual Maintenance Contracts with most cities in the Orange County area including Santa Ana, Fountain Valley, Huntington Beach, Westminster, Orange, and Anaheim. Our contract with Westminster has been continuously renewed for over 30 years.				



KEY PERSONNEL

MICHAEL G. BODART, PRESIDENT / DIRECTOR OF ENGINEERING

Academic University of Missouri - Bachelor of Science in Civil Engineering
Background Post Graduate C.E. Courses in Geohydrology, University of Southern California

Certifications 1999-Byron Jackson Training Certificate
1998-Grade 1 & 2 Distribution and Treatment Certificates
1998-Engineering "A" License
1995-Dale Carnegie Course
1995-Mackay Pump Rehabilitation Certificate
1992-Golden State Pump Technical Training Certificate
1990-Completed Graduate C.E. Courses in Geohydrology at U.S.C.
1986-Layne & Bowler Pump School Certification
1986-Baroid 1-week Drilling Fluid Technology Course Certification
1985-National Water Works Correspondence Course Certification

Professional Experience **General Pump Company, Inc. - President / Director of Engineering - 1993-Present**
Layne Western - Regional Engineering and Sales Manager (4 offices)
Federal Highway Administration - Civil Engineer

Professional Presentations Michael G. Bodart (Mike Bodart) is recognized as an expert in the field of pump engineering and well rehabilitation in southern California. He has been invited to speak for numerous professional water-related associations and conventions. Has been speaking professionally for more than 34 years and has presented in nationally known associations such as AWWA, Tri-State, Southern California Water Utility Association, Inland Water Works Association, Groundwater Resources Association and Central Coast Water Association. In 1992, Mike was part of a selected six-person panel of engineers who met in Kansas City to assist in training nationwide engineers in the water well pump business.

PETER H. BROOKS, CHIEF EXECUTIVE OFFICER

Academic Background Harvard University: Bachelor of Arts; Dual Master of Business Administration and Master Public Policy.

Professional Experience Peter Brooks is a water industry executive with 16+ years of management experience across the industry, where he has worked on disaster response and treatment plant operations as the leader of waterTalent; advanced water treatment and wastewater reuse at Xylem, Inc.; and in-conduit hydropower at NLine Energy. He is a former US Marine infantry officer, two-time Iraq War veteran, Fulbright Scholar, and an award-winning water policy instructor at Harvard where he also received an AB (High Honors) and MBA-MPP. Peter is a frequent speaker at water industry events and his writing and work have appeared in the Los Angeles Times, National Public Radio, and several water and wastewater industry publications including AWWA OpFlow, WEF Water & Environment Technology, and Water Online. He has given water industry presentations at Imagine H2O, Water Environment Federation WEFTEC, Association of Boards of Certification, American Water Works ACE, California Municipal Utilities Association, AWWA CA-NV, the Water Technology Summit, among others.



WALTER "RAY" REECE JR. BSBM-BSBA, GENERAL MANAGER

Professional Experience Combined over 40 years of experience managing businesses providing well rehabilitation, maintenance, well drilling, coring, pump manufacturing, and investigative drilling in the environmental, mining, energy and water resource industries. Earned two Bachelor of Science degrees in Business Administration and Management including a Finance focus. Identified, developed and negotiated contracts with private, public and governmental agencies to safely and successfully provide well rehabilitation technologies, pump and motor maintenance, drilling and construction services for a variety of applications. Ray has devoted time to technological transfers of information by conducting industry related seminars and guest lecturing at High Schools, Colleges, Universities, SME, AWWA, and the California Nevada American Water Works Association (Cal-NV AWWA).

FERNANDO MUNOZ. OPERATIONS MANAGER

Certifications Grade 2 - Distribution Certificate
Grade 2 - Water Treatment Operator

Professional Experience Over 40 years experience of quality control to ensure pumps are ready for installation, scheduling and management of shop and field production crews, and day-to-day management of those Company areas.

THOMAS A. NANCHY, SENIOR PROJECT MANAGER

Certifications 2004-Byron Jackson Training Certificate
1989-Dale Carnegie Course
1992-Golden State Pump Technical Training Certificate
1986-Layne & Bowler Pump School Certification
1994-Baroid 1-week Drilling Fluid Technology Course Certification
1998-National Water Works Correspondence Course Certification
1994-Goulds Pump Course
2020-BNSF Safety Course

Professional Experience Tom Nanchy, Sr. Project Manager, has been in the well and pump industry for over forty (40) years. Throughout his professional career, he has been involved with hundreds of well rehabilitations and is highly regarded in the industry. His wide range of experience allows him to solve many difficult well and pump issues and provide options. He has also spoken at many professional organizations throughout California with regards to well maintenance and well rehabilitations. Tom is AWWA certified pump installer and a certified pump installer for Large Water Systems (NGWA). He is factory trained and certified by Byron Jackson and Cla-Valve. Tom also holds a certificate with the Mine Safety and Health Administration (MSHA).



LUIS A. BUSSO, P.G., SR. PROJECT GEOLOGIST

Academic Background	University of California Santa Barbara – Bachelor of Science in Geologic Studies
Professional Experience	A State of California licensed professional geologist and principal hydrogeologist for General Pump Company. For the past 17 years his professional groundwater work has encompassed combining geological and industry knowledge toward municipal-supply and irrigation-supply water well project developments on behalf of water districts, cities, farmers, and other private owners within Central and Southern California. He currently works alongside Ray Reece, at General Pump Company’s Camarillo facility to design and implement pump and well solutions for the clients in the greater Santa Barbara and Ventura Counties.

MICHAEL R. GARCIA, VICE PRESIDENT OF PROJECT MANAGEMENT

Academic Background	California State University, Fullerton - Master of Science in Mechanical Engr. University of Redlands, Redlands - Bachelor of Science in Physics
Professional Background	Michael has been working for General Pump Company since 2014, starting as an assistant engineer and working his way into his current VP of project management role. Prior to entering the water industry, he was enrolled in a post graduate program where he was studying courses in materials of construction, mechanical design, and computer aided design. While at GPC, Michael has successfully managed and completed hundreds of well rehabilitation projects. In addition, he has spoken at numerous utility and professional water organizations including Southern California Edison, Southern California Gas Company, and Inland Empire Utilities Agency. Currently, Michael is responsible for overseeing the project management department at GPC to ensure efficient project execution and client satisfaction.

DANIEL J. PICHARDO, PROJECT MANAGER

Academic Background	Seattle University - Bachelor of Science, Civil Engineering, Mathematics Minor
Professional Background	Coordinate with project managers, operations manager, and senior applications engineer for materials procurement for all existing projects. Communicate with vendors and customers for timely delivery. Maintain safety manuals for continued safety compliance.

MARK HAAS, PROJECT MANAGER

Professional Background	Mark Haas has over 21 years’ experience within the well and pump industry and 12 industry, 12 years project management. Field experience includes service technician, pump system and electrical diagnostics/repair, Airburst® Operations to include R & D for Frazier Industries and Bolt Technologies for air gun operations and functionality. Over 40 years’ experience in machine shop and welding practices. Certified Crane Operator.
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PAUL RINEHART, PROJECT MANAGER

Professional Background Over 30 years of experience in the well and pump industry. Experience includes working in the shop, field, and office, performing pump removals, installations, inspections, conducting pump repairs, material acquisition as well as designing well and booster pumps. Coordinating with customers, vendors, operations manager, and field crews to ensure project completion in a timely manner.

CAITLIN ROWE, PROJECT MANAGER

Academic Background University of Southern California - Master of Science in Engineering Management
University of Southern California - Bachelor of Science in Industrial and Systems Engr.

Professional Background Caitlin started working for GPC in 2022 as an assistant engineer and project manager. She also worked on high-level process improvement to increase internal efficiency within GPC. Prior to entering the water industry, she worked on nuclear survivability experiments for strategic defense systems at Lawrence Livermore National Laboratory. Currently Caitlin coordinates with engineering and operations management to oversee various types of projects to completion.



General Pump Company's listed vehicles are 100% dedicated to and utilized for well & pump services. Our entire fleet inventory is registered in California.

LIST#	EQUIP#	YEAR	MAKE	BODY	VEHICLE ID#
1	9001	2010	Freightliner	Rig	1FVHCYDT5ADAT6569
2	90102	2019	Freightliner	Rig M2106	3ALHCYFC8KDKJ6929
3	90105	2020	Freightliner	Rig VA 108SD	1FVHG5FE2LHLJ2166
4	90106	2018	Freightliner	Derrick Rig 108SD	1FVHG5FE3JHJR2200
5	90107	2019	Freightliner	Rotary Crane 114SD	3ALHG3DV1KDKJ6928
6	9009	2015	Freightliner	Rotary Crane 114SD	1FVHG3CY4FHGL8481
7	90110	2015	Chevrolet	Stake Bed 3500	1GB4KYCG9FF537186
8	90111	2015	Chevrolet	Stake Bed 3500	1GB4KYCG3FF538334
9	90112	2015	Chevrolet	Stake Bed 3500	1GB4KYCG7FF543567
10	9017	2002	Grove	40 Ton Crane	476S500E02S222996
11	90118	2021	Freightliner	Rotary Crane 114SD	3ALHG3DV4MDMZ1731
12	9019	2015	Freightliner	40 Ton Crane 114SD	1FVHG3CY6FHGL8482
13	90121	2021	Western Star	Flatbed 4700SB	5KKHAXFE2MPMM3287
14	9023	2015	Peterbilt	Service Truck	2NP2HJ7X8FM253887
15	9024	2004	Big Tex	Utility Trailer	16VCX182241E28938
16	9025	1998	Carson	Trailer	4HXHD1828WC003061
17	90126	2018	Carr	Trailer	4YMBU1825JN008797
18	90127	2020	Chevrolet	Silverado 2500	1GB5WLE7XLF279278
19	9029	2009	Chevrolet	Silverado	1GCHC44K79F128548
20	9030	2009	Chevrolet	4WD Silverado	3GCFK332196230755
21	90131	2018	Freightliner	Service Truck M2106	3ALACWFD7JDJL0962
22	90132	2017	Freightliner	Service Truck M2106	3ALACWDU2HDJF2280
23	9033	2011	Chevrolet	Silverado 2500	1GC1CVCG7BF194205
24	9034	2011	Chevrolet	Silverado 1500	3GCPCE03BG248753
25	9035	2013	Chevrolet	Silverado 1500	3GCPCE03DG142483
26	9036	2018	Chevrolet	Silverado 2500	1GC1KWEY2JF175137
27	9037	2008	Toyota	Tacoma Pick-up	5TETU62N28Z510892
28	9038	2020	Chevrolet	Silverado 2500	1GC4YLE70LF175349
29	9039	2019	Chevrolet	Silverado 2500	2GB2CREG7K1241477
30	90140	2020	Western Star	Rig VA 4700SB	5KKAXDV3LPKX8500
31	90141	2020	Freightliner	Utility Truck	1FVACWD26LHLJ2165
32	90142	2018	Freightliner	Brigadier M2106	3ALACXFC2JDJU7097
33	90150	2021	Freightliner	Rotary Crane 114SD	1FVMG3FMXMHMR0323
34	9062	2016	Western Star	Flatbed 4700SB	5KKHAXDV1GPHG7546
35	9063	2016	Western Star	Flatbed 4700SB	5KKHAXDV5GPHM2654
36	9064	2016	Western Star	Flatbed 4700SB	5KKHAXDV3GPHM2653
37	9065	2019	Western Star	Flatbed 4700SB	5KKHAXFEXKPKL6627
38	9066	2019	Western Star	Flatbed 4700SB	5KKHAXFE1KPKL6628
39	9070	2018	Chevrolet	Stake Bed 3500	1GB4KYCGXJF157797
40	9071	2018	Chevrolet	Stake Bed 3500	1GB4KYCG6JF157876
41	9072	2018	Chevrolet	Stake Bed 3500	1GB4KYCGXJF157752



San Dimas Pump Engineering Center



Camarillo Pump Engineering Center



Drill & Press



Vertical Turret Lathe Machine



General Pump manufactures most of our parts, which reduces cost, saves time, and improves quality.

A 60-year collection of spare parts. If one pump is obsolete, there is a good chance we can find what we need or make it. Customer's equipment is temporarily stored for your inspection.





We repair your shafts with special pneumatic tools.



AirBurst® Equipment - A "Patented Process"



A staff of five maintains our rigs and equipment to make sure our equipment is safe and reliable.



GPC is the only Southern California Pump Service Company to own and operate a CNC machine. Why? Higher quality parts, faster, and at a lower cost.



Welding & Fabrication Shop

Our "primary" pipe fitter/welder is a certified welder with over 30 years experience.



Steam Cleaning



Sandblaster



375 Compressor



500HP Diesel Engine



Spare / Rental VFD Units Up to 600HP



30-Ton Crane



Service Truck



40 Ton-Crane



Welding Truck

Our newest addition to our fleet in 2023



Our 40-ton Grove





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www.genpump.com

WELL & PUMP SERVICE SINCE 1952

Lic. #496765

Serving Southern California and Central Coast

October 5, 2023

Via Email

Crescenta Valley Water District (CVWD)
2700 Foothill Blvd.
La Crescenta, CA 91214
Attn: Elias Sebhatu & Brook Yared

Subject: Mills Booster No. A – 150 HP Variable Frequency Drive Estimate

General Pump Company is pleased to provide our estimate to furnish and install a variable frequency drive to the booster pump assembly at Mills Booster No. A. We have produced this proposal based on the limited knowledge obtained from the RFP which included the booster design, can dimensions, and “as-built” drawings which was provided by CVWD.

Insights into existing panel sizing, conduit directions, and CVWD operational preferences may alter the location and design of the new VFD. Following General Pump Company’s inspection, if awarded, we can provide CVWD with the ideal controls needed.

Scope of Work

Shop Labor

- Receive and inspect new materials, quality assurance

5 Hrs. @ \$103/Hr. \$ 2,565.00

Materials

- 150 HP VFD to Operate Booster Design of 720 GPM @ 571’ TDH
- Conduit materials to locate VFD within existing control panel
- Miscellaneous consumables materials, tape, fittings, & restraints
- Estimated Freight

<i>SubTotal Materials (Taxable)</i>	<i><u>\$64,097.00</u></i>
<i>Estimated Local Tax (9.5%)</i>	<i><u>\$6,089.22</u></i>

Outside Service

- | | |
|-----------------------------|------------|
| • Installation of VFD Panel | \$9,091.00 |
|-----------------------------|------------|

<i>Total Labor, Service & Materials for Booster No. 26</i>	<i><u>\$79,792.22</u></i>
---	----------------------------------



General Pump Company's Standard Terms and Conditions apply and all invoices are Net 30-Days from date of invoice. General Pump Company's Estimated charges will not be exceeded without prior written authorization from the Owner.

Should you have any questions or need additional information regarding the above summary and associated costs, please do not hesitate to contact us. Thank you.

Sincerely,

GENERAL PUMP COMPANY, INC.

Luis Busso

Luis Busso, P.G.

Sr. Project Geologist



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October 5, 2023

Via Email

Crescenta Valley Water District (CVWD)
2700 Foothill Blvd.
La Crescenta, CA 91214
Attn: Elias Sebhatu & Brook Yared

Subject: Mills Booster No. B – Pump & Motor Assembly Estimate

General Pump Company is pleased to provide our estimate to pull, inspect, and repair the booster pump assembly at Mills Booster No. B. We have produced this proposal based on the limited knowledge obtained from “as-built” drawings and design which was provided by CVWD and the assumption that the motor, discharge head, and column pipe is in reusable condition.

If the information used for this estimate differs from what is revealed following the pull and inspection, the estimate may require adjustment. Following General Pump Company’s inspection, if existing parts of the assembly could be reused then a reduction in cost could also be possible.

Scope of Work

Shop Labor

- Pressure wash pump and prepare for disassembly, handling
- Remove pump head from bowls, remove packing box, disassemble
- Primer and paint discharge head
- Clean, Inspect Threads, and Prep Column Pipe
- Machine packing housing for external mech seal set-up
- Unassemble/Reassemble pump bowls, prep for installation
- Receive and inspect new materials, quality assurance
- Plumb mechanical seal with box air relief valve
- Remove/Press New Bronze Bearings
- Retrofit SS basket strainer with vortex suppressor
- Fabricate, fit, mount and install 316 shaft guard screens.
- Engineering inspection and report (included)

25 Hrs. @ \$103/Hr. \$ 2,575.00

Field Labor

Booster Pump Pull

- Mobilize to site, verify lock-out / tag-out electrical.
- Pull booster pump equipment and motor.



- Load on support truck.
- Sound booster can bottom.

Three Man Crew & Crane – 8 Hrs. @ \$536.00/Hr. \$ 4,288.00

ReInstall Booster Pump Assembly

- Mobilize to site
- Install booster pump equipment and motor.
- Check rotation, take lift, conduct start up testing.

Three Man Crew & Crane – 10 Hrs. @ \$536.00/Hr. \$5,360.00
Overtime – Est.6 Man Hrs. @ \$54/Man Hr. \$ 324.00

Materials

- Repair Parts for Pump Assembly Designed for 720 GPM @ 600' TDH
- Materials for Mechanical Seal Repair
- Line Shaft Assembly Material
- Materials for 200 HP Motor Rewind
- Bronze Retainers
- SS Basket strainer with vortex suppressor
- Miscellaneous consumables materials, gaskets, flanges, fittings, & restraints
- Estimated Freight

SubTotal Materials (Taxable) **\$32,536.00**
Estimated Local Tax (9.5%) **\$3,090.92**

Outside Service

- Mechanical Seal Assembly Refurbishment \$2,728.00
- Complete Rewind of 200 HP Motor Labor \$7,414.00

Total Labor, Service & Materials for Mills Booster No. B **\$58,315.92**

General Pump Company's Standard Terms and Conditions apply and all invoices are Net 30-Days from date of invoice. General Pump Company's Estimated charges will not be exceeded without prior written authorization from the Owner.

Should you have any questions or need additional information regarding the above summary and associated costs, please do not hesitate to contact us. Thank you.

Sincerely,

GENERAL PUMP COMPANY, INC.

Luis Busso

Luis Busso, P.G.
Sr. Project Geologist



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October 5, 2023

Via Email

Crescenta Valley Water District (CVWD)
2700 Foothill Blvd.
La Crescenta, CA 91214

Attn: Brook Yared & Elias Sebhatu

Subject: CVWD Well No. 14 – Well Rehabilitation and Recommendations

General Pump Company (GPC) is pleased to provide this estimate to conduct well rehabilitation within CVWD Well No. 14. Our crews recently pulled the pump assembly from the well due to pump failure and sand production. Upon removal, the well pump was disassembled and inspected, and a video survey was conducted shortly after on July 7, 2023.

This video survey revealed several enlarged mill slotted perforations above pumping water levels from 115 ft bgs to ~200 ft bgs. In contrast, significant scale plugging throughout the mill slots below 200 ft bgs to the total depth of the well. Approximately 10 ft of fill material at the bottom of the well at 257 ft bgs was also observed. A portion of PVC piping was observed at a depth of approximately 189 ft bgs. It is highly recommended that the PVC be removed and a rehabilitation procedure be conducted to break up and dissolve this scale build up which has had considerable time to accumulate.

Data reviewed from our archives show that this well has never been lined or had a rehabilitation procedure conducted. So it has been over 70 years since this well has been able to have scale accumulation to plug the perforations. Production will continue to decrease with time if not addressed and the well casing integrity could be weak due to age. Wire Brushing is not recommended for this well given the age and enlarged perforations. These observations were developed by GPC personnel during the recent pump assembly removal, teardown, and visual inspection of the equipment and review of data provided by CVWD.

Engineering Inspection

- Grundfos 230S300 stainless steel submersible pump rotates poorly as gravels/sands can be felt in the bowls; internal shaft bearings are significantly worn; pump coupling end is sand worn.
- Motor megs 0.3 megohms @ 500 volts; low megs is evidence of deteriorated internal windings; replacement recommended.
- Submersible motor coupling shaft end is significantly worn; pump appeared to be only partially coupled due to key wear.
- #4 Submersible motor cable in good condition; insulation still intact; reusable.



- 4" CertaLok Drop Pipe, five hundred (213) feet of pipe is in fair condition; reuseable. O-Rings and Splines should be replaced.
- Well discharge head in fair condition; clean, repaint, and reuse.
- 2" and 1" Sch80 PVC sounding tube in good condition; reusable.

SCOPE OF WORK

Shop Labor

- Load/Unload equipment as needed
- Clean, replace o-rings, and prep existing drop pipe for reuse
- Refurbish, Primer & Paint existing discharge head
- Clean and Inspect new drop pipe joints, quality assurance
- Prep submersible pump swab for usage
- Fabricate Engineered Suction for Motor
- Fabricate Sub Pump Swab Tool
- Splice Rehab Sub Pump Wiring and New Assembly
- Prep chemistry, hoses, tanks, and safety equipment
- Engineering inspection and report (included at no additional charge)
- Hydrogeologic Support (included at no additional charge)

Estimated 79 Shop Hrs. @ \$102.60/Hr. \$8,105.40

Field Labor: (Bail/Chemical Treatment/Mech Dev/Install/Start Up/Sand Testing):

- Mobilize to site; Bail to bottom if possible (Max 2 days).
- Inject Chemistry into Perforations (Assumes 1 Day).
- Agitate Well or Allow Contact Time next day.
- Perform Mechanical Development with Submersible Pump Swab Tool within perforations and Neutralize Discharge until water clear of material. Solids to remain onsite and neutralized water to be sent to CVWD designated waste line.
- Install New Pump Assembly; Disinfect Equipment.
- Conduct Start Up and Perform Pump Sand Testing.

Three Man Crew & Pump Rig – Est. 98 Hrs. @ \$535.50/Hr.	\$52,479.00
Two Man Crew & Rig – Est. 18 Hrs. @ \$404.10/Hr.	\$7,273.80
One Man Crew & Service Truck – Est. 24 Hrs. @ \$166.50/Hr.	\$3,996.00
Add Helper – Est. 6 Hrs. @ \$120.00/Hr.	\$720.00
Overtime – 104 Hrs. @ \$54/Man Hr.	\$5,616.00
Total Field Labor	\$70,084.80

Materials and Rentals (Non-Taxable):

- Bailer Rental
- Baffled Neutralization Tank (1.5k Gal Containment) and Associated Hoses



- Secondary Baker Tank or Roll-off Tanks
- Submersible Pump Assembly for Sub/Swab Tool Development
- Rental of Chemical Trailer and Mixing Station

Total Materials and Rentals (Non-Taxable) \$10,237.00

Materials (Taxable):

- New Pump Designed for 74 GPM @ 406 TDH
- 15HP Submersible Motor
- Flat jacket wire with ground extension & Splice Kits
- Engineered Suction Motor Cooling Sleeve
- 4" Certalok Drop Pipe x 20 ft Length with Coupling (Qty 2)
- Replacement Spline and O-Rings for 4" Certalok Pipe (Qty 11)
- 1/4" SS Dekron Airline and Airline Guage Fittings
- Well Renew® Blended Chemistry
- Inhibited Hydrochloric Acid
- Sodium Bicarbonate
- Sodium Hypochlorite
- Misc Materials, Fittings, Hoses, and Chemicals
- Freight

Total Materials (Taxable) \$35,672.00

Estimated Taxes @ 9.5% \$3,388.84

Estimated Total Labor, Material & Taxes \$39,060.84

Outside Service

- Pre and Post-Rehabilitation Video Survey \$2,400.00

Estimated Total Labor, Materials, Taxes & Service \$129,888.04

General Pump Company's Standard Terms and Conditions apply and all invoices are Net 30-Days from date of invoice. General Pump Company's Estimated charges will not be exceeded without prior written authorization from the Owner. Should you have any questions or need additional information regarding the above summary and associated costs, please do not hesitate to contact us.

Sincerely,

GENERAL PUMP COMPANY, INC.

Luis Busso, P.G.

Sr. Project Geologist



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WELL & PUMP SERVICE SINCE 1952

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Serving Southern California and Central Coast

August 30, 2023

Via Email

Crescenta Valley Water District (CVWD)
2700 Foothill Blvd.
La Crescenta, CA 91214
Attn: Elias Sebhatu & Brook Yared

Subject: CVWD Paschall Bstr B (aka Bstr 17) – Temporary Rental Pump

General Pump Company is pleased to provide our estimate to provide a temporary pump within Paschall Bstr B site. The previous submersible pump was inspected by our team and found to have a critical failure which stemmed from the internal thrust bearing of the motor. This caused the pump impellers to run at bottom and cause unrepairable damage to the bowl assembly.

The exact cause of thrust bearing failure is unknown but it is believed that the motor cooling sleeve coming loose caused the motor to overheat leading to the thrust bearing failure. The future temporary pump will adjust the suction inlet depth to operate without the cooling sleeve.

SCOPE OF WORK

Shop Labor

- Load/Unload Materials for Installation of Temp pump
- Fabricate Fishing Tool for Sleeve Removal
- Couple Motor and Pump
- Splice Wiring
- Assemble/Disassemble Temp Pump for quality assurance.
- Engineering inspection and report (included)

24 Hrs. @ \$102.60/Hr. \$2,462.40

Field Labor

Fish Sleeve from Can, Install Temporary Pump Assembly

- Mobilize to site.
- Fish Sleeve from Booster Can
- Install Pump Assembly with Design for 550 GPM @ 250' TDH.

Three Man Crew & Rig, Flatbed – Est. 18 Hrs @ \$535.50/Hr.

\$9,639.00



Materials/Rentals (Non-Taxable);

- Pump/Motor Assembly Rental (**Monthly Rate**) \$2,667.00

Materials (Taxable):

- Fishing Tool Materials
- 6" x 2 ft Column Pipe
- Misc Materials, Gaskets, Fittings, Tape, and Banding
- Freight

Total Materials (Taxable) \$1,528.00
Estimated Taxes @ 9.5% \$145.16

Total Materials/Rentals (Taxable) \$1,673.16

Estimated Total Labor, Service & Materials \$ 16,441.56

General Pump Company's Standard Terms and Conditions apply and all invoices are Net 30-Days from date of invoice. General Pump Company's estimated charges are on a time and materials basis required to complete the outlined scope of work. The estimated amount will not be exceeded without prior written authorization from the Owner. Current lead time is within 2-4 week of approval.

Sincerely,

GENERAL PUMP COMPANY, INC.

Luis Busso, P.G.
Sr. Project Geologist



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WELL & PUMP SERVICE SINCE 1952

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September 19, 2023

Via Email

Crescenta Valley Water District (CVWD)
2700 Foothill Blvd.
La Crescenta, CA 91214
Attn: Elias Sebhatu & Brook Yared

Subject: CVWD Paschall Bstr B (aka Bstr 17) – Permanent Water Lubricated Pump

General Pump Company is pleased to provide our estimate to provide a permanent water lubricated pump assembly within Paschall Bstr B site. The previous submersible pump was inspected by our team and found to have a critical failure which stemmed from the internal thrust bearing of the motor. This caused the pump impellers to run at bottom and cause unrepairable damage to the bowl assembly and panel.

This estimate assumes that the net positive suction head required (NPSHr) for this new pump assembly can be designed at or below 15 ft given that historical pumps contained designs between 15 ft and 24 ft with no cavitation reported. The average level setting within the adjacent reservoir for this booster site has been provided by CVWD personnel at 15 ft from base of the tank.

SCOPE OF WORK

Shop Labor

- Load/Unload Materials for Installation of pump assembly.
- Assemble/Disassemble Temp Pump for quality assurance.
- Machine Column Pipe, Discharge Head faces parallel and concentric
- Machine Headshaft
- Check Pump Alignment in Shop Can
- Prepare discharge head and packing box for installation

37 Hrs. @ \$102.60/Hr. \$3,796.20

Field Labor

Install Permenant Pump Assembly

- Mobilize to site.
- Install Pump Assembly with Design for 550 GPM @ 250' TDH.
- Fabricate Discharge Piping, if necessary.



Three Man Crew & Rig, Flatbed – Est.12 Hrs @ \$535.50/Hr.	\$6,426.00
One Man & Service Truck – Est 5 Hrs @ \$166.50/Hr.	\$832.50
Overtime per Man/Hr – Est 4 Hrs @ \$166.50/Hr.	\$648.00

Materials (Taxable):

- Water Lubricated Bowl Assembly w/SS Impellers (Design 550gpm @ 250'TDH)
- Custom 6" Discharge Head with Mechanical Seal
- 50 HP VHS 1800 RPM Motor, NRR, 3PH/460V/60Hz Inverter Duty
- 6" Romac Flex Coupling, if necessary
- 6" Flanged Column Pipe and SS shafting assembly
- SS Basket Strainer with Vortex Suppressor
- Misc Materials, Conduit, Gaskets, Fittings, Tape, and Banding
- Freight

Total Materials (Taxable)	\$30,629.00
Estimated Taxes @ 9.5%	\$3,055.30

<i>Total Materials/Rentals (Taxable)</i>	<u>\$35,216.30</u>
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Estimated Total Labor, Service & Materials \$ 46,919.00

General Pump Company's Standard Terms and Conditions apply and all invoices are Net 30-Days from date of invoice. General Pump Company's estimated charges are on a time and materials basis required to complete the outlined scope of work. The estimated amount will not be exceeded without prior written authorization from the Owner. Current lead time for materials is within 5-7 weeks of approval.

Sincerely,

GENERAL PUMP COMPANY, INC.

Luis Busso, P.G.
Sr. Project Geologist



JUDY TEJEDA
RESERVOIR SITE
DEDICATED ON THIS DAY
SEPTEMBER 26, 2023

NEWS FROM THE CVWD

By CV Weekly on October 26, 2023 · 0 Comments



Dear Community,

There has been an increasing amount of armed conflict abroad. Although our service toward public interest is focused on this community, we are concerned with public interest overall and our hearts extend to all those affected by the recent and ongoing tragedies.

On the home front, we've welcomed respite from the spate of major main breaks and service lateral leaks that represented acute challenges last month. One of the main breaks, the 12" pipe running through the Rosemont Avenue overpass that failed and shut down the 210 Freeway, presented an opportunity for partnership with Caltrans. District staff recognized that coordinating overpass inspections with Caltrans' schedule would provide both agencies more efficiency as well as understanding (thank you to Operations & Maintenance Manager Darlene Telles for identifying this idea). This builds on our theme of increasing partnership with first responder agencies. For example, the District will host the last part of our local CERT team's training series offered in conjunction with the Crescenta Valley Sheriff's Station.

The County has sent out annual property tax bills. The capital charge of \$194 for most households was recently implemented to get ahead of main breaks, such as the Rosemont overpass currently being repaired. A quick online search will show that these events are beginning to accelerate, some with disastrous consequences turning communities into campgrounds (without water or wastewater service) from Ventura County to Orange County. The capital charge won't eliminate such disasters for us but it will accelerate infrastructure replacement so we can minimize them and better manage them when they do

happen – for example, making sure fire hydrants are replaced and properly maintained and that the hydrants are backed by pipelines with appropriate pressure so the fire department can put fires out. If you happened to miss this discussion, there is a wealth of public outreach materials on our website. Our customer service staff is ready to answer questions, and you can speak with me directly as well. Please remember that you may opt to place the charge on your utility bill instead (for next year).

Meanwhile, we are finalizing our Bill Assistance Program, which represents an augmented level of assistance to accommodate for the capital charge.

The board of directors recently hired a new audit firm after a number of years with the prior firm based on best practices for maintaining independence. SingerLewak is a national firm with a public agency practice that analyzes and examines the District's financial records, checks and balances, and measures for financial accountability. The annual audit takes several months and early next year the final report will join other annual financial audit reports on our website.

I had written previously about recruiting for a Regulatory & Public Affairs manager and a communications consultant to update and engage with you more consistently on topics such as main breaks, the capital charge or upcoming conservation mandates from the state that are around the corner. We are very pleased to announce that Patrick Atwater has recently joined our team. He brings a lot of horsepower to this role having served the water industry in various roles. He's also a local, having played football for CV High (Go, Falcons!) and growing up on CVWD tap water. Look for him at community events, along with Jennifer Bautista who was recently promoted to Regulatory & Public Affairs specialist to provide additional support in an area of investment for the District.

Finally, board director Judy Tejeda recently announced that she will be retiring at year's end following more than 30 years of service to the District and the community for which she was always a vocal champion. During a recent ceremony to dedicate a reservoir to her next to Rosemont Middle School, dignitaries from CV Town Council, the offices of Supervisor Kathryn Barger, State Senator Anthony Portantino, Congressman Adam Schiff and Glendale Community College came to represent their appreciation for her service to the community. Director Tejeda provided an incredible model of stewardship and public service that we strive to achieve every day in our work at CVWD. The

board is seeking a member who will contribute to the community with their opinions and experiences. We will publicize the opening around the community. Please reach out to us to inquire about the position.

Thank you as always and talk soon.

James Lee, General Manager
CVWD



NEWS FROM THE CVWD <<< JAMES LEE added by **CV Weekly** on October 26, 2023
[View all posts by CV Weekly](#) →

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CV Weekly

October 26, November 2 & November 9, 2023

CVWD Looking to Fill Board Vacancy

Crescenta Valley Water District (CVWD) will have a vacancy on its board of directors beginning Jan. 1, 2024.

Board members provide general oversight, guidance and direction to District staff concerning operations, finances and customer relations. The board typically meets the second and fourth Tuesdays of each month at 7 p.m., and board members are assigned on one to three committees that meet twice a month on average.

The board of directors seeks a board member who has the desire and ability to contribute to informed decision-making and to represent the best immediate and long-term interests of the community. The board also values diversity of opinion and experience.

The position is open to every registered voter who lives within CVWD's district boundaries and the term lasts until the next election in November 2024.

A copy of the District map is available at www.cvwd.com/board-of-directors- recruitment.

To apply, please send a Statement of Interest (resume/ CV optional) to employment@cvwd.com or the District's office by Friday, December 1, at 4pm.

For more information, please contact the District's General Manager, James Lee, at (818) 248-3925 or jlee@cvwd.com.

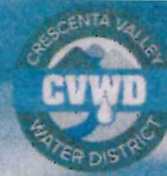
October 26, 2023

November 2, 2023

November 9, 2023

Crescenta Valley

Water District



Notice of Recruitment for Board of Directors

Crescenta Valley Water District will have a vacancy on its Board of Directors beginning January 1, 2024.

Board members provide general oversight, guidance, and direction to District staff concerning operations, finances, and customer relations. The Board typically meets the second and fourth Tuesdays of each month at 7pm, and Board members are assigned to one to three committees which meet twice a month on average.

The Board of Directors seeks a Board member who has the desire and ability to contribute to informed decision-making and to represent the best immediate and long-term interests of the community. The Board also values diversity of opinion and experience.

The position is open to every registered voter who lives within CVWD's district boundaries, and it is for a limited term until the next election in November 2024. A copy of the District map is available at www.cvwd.com/board-of-directors-recruitment.

To apply, please send a Statement of Interest (resume/CV optional) to employment@cvwd.com or the District's office by Friday, December 1, at 4pm.

For more information: please contact the District's General Manager, James Lee, at (818) 248-3925 or jlee@cvwd.com.

2700 Foothill Boulevard

818.248.3925

www.cvwd.com

CV WEEKLY IS ONLINE!

WWW.CVWEEKLY.COM

CRESCENTA VALLEY WATER DISTRICT

General Manager Report

GM Report

November 14, 2023

To: Honorable President and Members of the Board of Directors

From: James Lee, General Manager

Subject: General Manager Report

General Manager's Report Topics:

- Investment report
- Rosemont/210 undercrossing repair + La Canada Irrigation District mutual aid
- Public Engagement Master Plan update
- Regional emergency preparedness tabletop
- Emergency Response Plan update
- Bond financing update
- Veteran's Day tribute – Climb for Heroes
- Upcoming employee events: Thanksgiving Potluck / Holiday Luncheon

STAFFING

1 employee has a work anniversary in November: Adam Sutphin – 4 years.

As of November 9th, the District has gone 675 days without a lost time accident.

GENERAL MANAGER ACTIVITIES

Meetings:

Managers Meeting(s)	- October 30 th , November 6 th , November 13 th
Crescenta Valley Community Association	- October 26 th
La Crescenta Sheriff's Trunk or Treat	- October 28 th
Chili Cookoff	- October 31 st
Standard & Poor's Credit Rating Presentation	- November 1 st
Meeting with Rubio Canon Land & Water Assoc.	- November 1 st
Meeting with AFSCME 1902	- November 2 nd
Policy Committee Meeting	- November 7 th
Engineering Committee Meeting	- November 8 th
Rate Workshop at La Crescenta Library	- November 8 th
Veteran's Day Tribute – Climb for Heroes	- November 11 th

Submitted by:



James Lee
General Manager



**Crescenta Valley Water District
Investment Portfolio Report
as of September 30, 2023**

Investment Type	Acct. No	Purchase Date	Face Value	Investment Cost	% of total	Market Value	Maturity Date	Earned to Date	Yield to Maturity
Wells Fargo Sweeps	5246		\$ 393,631	\$ 393,631	3.04%	\$ 393,631		\$ 6,785	5.20%
Subtotal			\$ 393,631	\$ 393,631	3.04%	\$ 393,631		\$ 6,785	
Local Area Investment Fund	90-19-007		\$ 1,671,920	\$ 1,671,920	12.89%	\$ 1,671,920		\$ 24,720	3.59%
Bank of the West	78622255	8/29/2023	\$ 464,744	\$ 464,744	3.58%	\$ 464,744	10/10/2023		5.10%
Bank of the West	78622271	8/29/2023	\$ 697,116	\$ 697,116	5.38%	\$ 697,116	12/10/2023		5.15%
Bank of the West	78622297	8/29/2023	\$ 697,116	\$ 697,116	5.38%	\$ 697,116	2/10/2024		5.16%
Subtotal			\$ 3,530,896	\$ 3,530,896	27.23%	\$ 3,530,896		\$ 24,720	
ABS - BMW Vehicle Lease Trust	09690AAC7	09/08/2021	\$ 4,744	\$ 4,744	0.04%	\$ 4,717	12/26/2024	\$ 0	0.34%
ABS - GM Financial Auto Lease Trust	36265MAC9	02/15/2022	\$ 49,463	\$ 49,462	0.38%	\$ 48,831	3/20/2025	\$ 29	1.91%
ABS - BMW Vehicle Lease Trust	05601XAC3	01/11/2022	\$ 16,176	\$ 16,176	0.12%	\$ 15,986	3/25/2025	\$ 3	1.11%
ABS - Honda Auto Receivables	43815EAC8	08/17/2021	\$ 36,636	\$ 36,636	0.28%	\$ 35,478	11/18/2025	\$ 5	0.41%
ABS - Honda Auto Receivables Trust	43815GAC3	11/16/2021	\$ 25,714	\$ 25,712	0.20%	\$ 24,712	1/21/2026	\$ 6	0.89%
ABS - Toyota Auto Receivables Trust	89238JAC9	11/09/2021	\$ 21,624	\$ 21,624	0.17%	\$ 20,802	4/15/2026	\$ 7	0.71%
ABS - Honda Auto Receivables Trust	43815BAC4	02/15/2022	\$ 45,000	\$ 44,997	0.35%	\$ 43,415	5/15/2026	\$ 38	1.89%
ABS - Toyota Auto Receivables OT	89238FAD5	04/07/2022	\$ 30,000	\$ 30,000	0.23%	\$ 29,206	9/15/2026	\$ 39	2.95%
ABS - GM Financial Securitized Term	362554AC1	10/13/2021	\$ 17,245	\$ 17,245	0.13%	\$ 16,545	9/16/2026	\$ 5	0.68%
ABS - John Deere Owner Trust	47787JAC2	03/10/2022	\$ 35,000	\$ 34,996	0.27%	\$ 33,885	9/16/2026	\$ 36	2.34%
ABS - John Deere Owner Trust	47800AAC4	07/12/2022	\$ 35,000	\$ 34,998	0.27%	\$ 34,070	2/16/2027	\$ 58	3.77%
ABS - Toyota Auto Receivables Owner	89231CAD9	08/08/2022	\$ 80,000	\$ 79,991	0.62%	\$ 77,583	4/15/2027	\$ 134	3.80%
ABS - Hyundai Auto Receivables Trust	448979AD6	04/04/2023	\$ 40,000	\$ 39,997	0.31%	\$ 39,340	4/15/2027	\$ 81	4.63%
ABS - John Deere Owner Trust	47800BAC2	10/12/2022	\$ 60,000	\$ 59,997	0.46%	\$ 59,359	6/15/2027	\$ 136	5.15%
ABS - Mercedes-Benz Auto Receivables	58768PAC8	11/15/2022	\$ 85,000	\$ 84,987	0.66%	\$ 84,438	8/16/2027	\$ 197	5.28%
ABS - GM Auto Receivable Trust	362583AD8	04/04/2023	\$ 30,000	\$ 29,999	0.23%	\$ 29,329	2/16/2028	\$ 56	4.51%
Agency - FHLB	3130AQF57	12/27/2021	\$ 200,000	\$ 199,936	1.54%	\$ 197,864	12/22/2023	\$ 344	0.77%
Agency - FFCB	3133ENPG9	02/10/2022	\$ 115,000	\$ 114,859	0.89%	\$ 109,464	2/14/2025	\$ 263	1.84%
Agency - FFCB	3133ELVQ4	08/24/2021	\$ 200,000	\$ 201,100	1.55%	\$ 187,515	4/1/2025	\$ 950	0.58%
Agency - FHLMC	3134GXHY3	09/30/2022	\$ 120,000	\$ 109,360	0.84%	\$ 106,659	6/23/2026	\$ 245	4.30%
Agency - FHLB	3130ATUS4	12/27/2022	\$ 165,000	\$ 166,450	1.28%	\$ 162,118	12/10/2027	\$ 2,162	4.01%
CMO - FHLMC	3137BWWD2	08/18/2021	\$ 86,078	\$ 86,587	0.67%	\$ 85,295	1/25/2024	\$ 215	0.49%
CMO - FHLMC	3137B7YY9	11/05/2021	\$ 79,965	\$ 80,591	0.62%	\$ 79,402	1/25/2024	\$ 233	0.58%
CMO - FHLMC	3137BFXT3	08/19/2021	\$ 100,000	\$ 102,198	0.79%	\$ 96,637	12/25/2024	\$ 45	0.62%
Corporate - Charles Schwab Corp	808513BN4	06/28/2021	\$ 100,000	\$ 100,102	0.77%	\$ 97,608	3/18/2024	\$ 27	0.53%

Investment Type	Acct. No	Purchase Date	Face Value	Investment Cost	% of total	Market Value	Maturity Date	Earned to Date	Yield to Maturity
Corporate - Bank of NY Mellon Corp	06406RAS6	07/28/2021	\$ 100,000	\$ 100,035	0.77%	\$ 97,044	4/26/2024	\$ 215	0.44%
Corporate - Toronto Dominion Bank	89114QCA4	08/24/2021	\$ 100,000	\$ 101,410	0.78%	\$ 97,712	6/12/2024	\$ 802	0.61%
Corporate - Paccar Financial Corp	69371RR81	06/06/2022	\$ 100,000	\$ 99,992	0.77%	\$ 98,217	6/13/2024	\$ 945	3.16%
Corporate - Salesforce.com Inc	79466LAG9	12/03/2021	\$ 115,000	\$ 114,631	0.88%	\$ 110,528	7/15/2024	\$ 152	1.04%
Corporate - US Bancorp	91159HHX1	07/28/2021	\$ 100,000	\$ 101,483	0.78%	\$ 97,135	7/30/2024	\$ 407	0.59%
Corporate - Paccar Financial Corp	69371RR40	08/03/2021	\$ 75,000	\$ 74,988	0.58%	\$ 71,781	8/9/2024	\$ 54	0.52%
Corporate - John Deere Capital Corp	24422EVU0	12/03/2021	\$ 115,000	\$ 114,598	0.88%	\$ 109,774	9/10/2024	\$ 42	1.00%
Corporate - Apple Inc	037833DM9	08/24/2021	\$ 100,000	\$ 101,106	0.78%	\$ 96,590	9/11/2024	\$ 100	0.62%
Corporate - Caterpillar Finl Service	14913Q3B3	10/27/2021	\$ 110,000	\$ 111,433	0.86%	\$ 105,928	11/8/2024	\$ 939	0.95%
Corporate - Bank of Montreal	06367WB85	08/24/2021	\$ 100,000	\$ 101,442	0.78%	\$ 93,850	5/1/2025	\$ 771	0.92%
Corporate - JP Morgan Chase & Co	46647PCK0	06/28/2021	\$ 100,000	\$ 100,055	0.77%	\$ 95,968	6/23/2025	\$ 264	2.17%
Corporate - Wal-Mart Stores	931142EW9	09/06/2022	\$ 25,000	\$ 24,989	0.19%	\$ 24,370	9/9/2025	\$ 60	3.92%
Corporate - National Rural Utilities	637432NG6	05/25/2022	\$ 110,000	\$ 110,023	0.85%	\$ 104,944	11/1/2025	\$ 1,490	3.24%
Corporate - State Street Bank	857477BR3	02/02/2022	\$ 30,000	\$ 30,000	0.23%	\$ 28,310	2/6/2026	\$ 80	3.05%
Corporate - Berkshire Hathaway	084670BS6	10/27/2021	\$ 110,000	\$ 114,670	0.88%	\$ 104,946	3/15/2026	\$ 153	1.34%
Corporate - Royal Bank of Canada	78016EZQ3	07/16/2021	\$ 100,000	\$ 100,107	0.77%	\$ 89,186	4/27/2026	\$ 513	1.16%
Corporate - Morgan Stanley	6174468Q5	07/27/2022	\$ 135,000	\$ 130,146	1.00%	\$ 126,818	4/28/2026	\$ 1,255	5.06%
Corporate - Amazon.com Inc	023135BX3	07/22/2021	\$ 100,000	\$ 100,442	0.77%	\$ 89,909	5/12/2026	\$ 386	0.83%
Corporate - United Health Group Inc	91324PEC2	07/28/2021	\$ 100,000	\$ 100,477	0.77%	\$ 89,956	5/15/2026	\$ 434	0.96%
Corporate - Toyota Motor Credit Corp	89236TJK2	06/28/2021	\$ 100,000	\$ 99,798	0.77%	\$ 89,298	6/18/2026	\$ 322	1.20%
Corporate - Bank of America Corp	06051GJD2	07/16/2021	\$ 100,000	\$ 100,090	0.77%	\$ 91,707	6/19/2026	\$ 374	2.31%
Corporate - Wal-Mart Stores	931142ER0	Various	\$ 100,000	\$ 92,471	0.71%	\$ 89,163	9/17/2026	\$ 41	3.80%
Corporate - Target Corp	87612EBM7	Various	\$ 110,000	\$ 107,592	0.83%	\$ 99,345	1/15/2027	\$ 453	2.66%
Corporate - Procter & Gamble Co	742718FV6	01/27/2022	\$ 110,000	\$ 109,896	0.85%	\$ 99,659	2/1/2027	\$ 348	1.93%
Corporate - Northern Trust Company	665859AW4	Various	\$ 140,000	\$ 141,205	1.09%	\$ 132,430	5/10/2027	\$ 2,193	3.74%
Money Market Fund - First American	31846V203	Various	\$ 161,286	\$ 161,286	1.24%	\$ 161,286	9/30/2023	\$ -	4.94%
Supranational - Inter-American Dev Bank	4581X0DN5	09/23/2021	\$ 200,000	\$ 199,602	1.54%	\$ 184,452	7/15/2025	\$ 264	0.74%
Supranational - Intl. Bank Recon & Development	459058JL8	08/30/2021	\$ 200,000	\$ 199,276	1.54%	\$ 182,011	10/28/2025	\$ 425	0.68%
US Treasury - US Treasury	91282CBV2	07/28/2021	\$ 150,000	\$ 150,049	1.16%	\$ 145,975	4/15/2024	\$ 260	0.31%
US Treasury - US Treasury	91282CCC3	07/16/2021	\$ 200,000	\$ 199,823	1.54%	\$ 193,617	5/15/2024	\$ 189	0.39%
US Treasury - US Treasury	91282CCG4	08/24/2021	\$ 200,000	\$ 199,776	1.54%	\$ 192,820	6/15/2024	\$ 148	0.41%
US Treasury - US Treasury	91282CCL3	07/16/2021	\$ 200,000	\$ 199,907	1.54%	\$ 192,203	7/15/2024	\$ 159	0.43%
US Treasury - US Treasury	912828YH7	08/25/2021	\$ 190,000	\$ 191,952	1.48%	\$ 182,786	9/30/2024	\$ 8	0.46%
US Treasury - US Treasury	912828YV6	08/26/2021	\$ 190,000	\$ 192,161	1.48%	\$ 181,784	11/30/2024	\$ 958	0.51%
US Treasury - US Treasury	912828Z52	08/24/2021	\$ 200,000	\$ 202,227	1.56%	\$ 189,906	1/31/2025	\$ 463	0.53%
US Treasury - US Treasury	912828ZC7	07/16/2021	\$ 200,000	\$ 201,613	1.55%	\$ 188,781	2/28/2025	\$ 192	0.55%
US Treasury - US Treasury	912828ZF0	07/28/2021	\$ 200,000	\$ 200,010	1.54%	\$ 186,367	3/31/2025	\$ 3	0.50%
US Treasury - US Treasury	912828ZL7	08/25/2021	\$ 200,000	\$ 199,258	1.54%	\$ 185,414	4/30/2025	\$ 314	0.61%
US Treasury - US Treasury	912828ZT0	08/26/2021	\$ 200,000	\$ 198,727	1.53%	\$ 184,422	5/31/2025	\$ 168	0.64%
US Treasury - US Treasury	912828ZW3	07/16/2021	\$ 200,000	\$ 198,738	1.53%	\$ 183,813	6/30/2025	\$ 126	0.62%

Investment Type	Acct. No	Purchase Date	Face Value	Investment Cost	% of total	Market Value	Maturity Date	Earned to Date	Yield to Maturity
US Treasury - US Treasury	91282CAB7	06/28/2021	\$ 200,000	\$ 198,281	1.53%	\$ 183,125	7/31/2025	\$ 84	0.73%
US Treasury - US Treasury	912828K74	05/25/2022	\$ 150,000	\$ 148,209	1.14%	\$ 141,732	8/15/2025	\$ 383	2.67%
US Treasury - US Treasury	91282CAM3	06/28/2021	\$ 200,000	\$ 197,985	1.53%	\$ 182,000	9/30/2025	\$ 1	0.76%
US Treasury - US Treasury	91282CAT8	07/28/2021	\$ 200,000	\$ 198,543	1.53%	\$ 181,352	10/31/2025	\$ 209	0.60%
US Treasury - US Treasury	91282CAZ4	07/28/2021	\$ 200,000	\$ 198,975	1.53%	\$ 181,211	11/30/2025	\$ 252	0.62%
US Treasury - US Treasury	91282CBH3	08/05/2021	\$ 200,000	\$ 198,703	1.53%	\$ 180,039	1/31/2026	\$ 126	0.66%
US Treasury - US Treasury	91282CBT7	07/30/2021	\$ 200,000	\$ 200,447	1.55%	\$ 180,859	3/31/2026	\$ 4	0.66%
US Treasury - US Treasury	91282CCJ8	08/05/2021	\$ 200,000	\$ 200,911	1.55%	\$ 179,953	6/30/2026	\$ 442	0.71%
US Treasury - US Treasury	91282CCP4	08/24/2021	\$ 200,000	\$ 199,152	1.54%	\$ 178,008	7/31/2026	\$ 211	0.78%
US Treasury - US Treasury	9128283F5	12/22/2022	\$ 160,000	\$ 150,656	1.16%	\$ 145,512	11/15/2027	\$ 1,360	3.82%
Subtotal			\$ 9,063,932	\$ 9,042,091	69.73%	\$ 8,524,255		\$ 24,855	
Total Investments			\$ 12,988,459	\$ 12,966,618	100.00%	\$ 12,448,782		\$ 56,360	2.34%
						\$ (517,836)	Unrealized Gain/(Loss)		

I certify that this report accurately reflects all pooled investments and is in compliance with California Government Code; are currently in conformity with the investment policy as stated in Resolution 783. As Treasurer of the Crescenta Valley Water District, I, James K. Lee hereby certify that sufficient investment liquidity and anticipated revenues are available to meet one year of estimated expenditures for the Operations of Crescenta Valley Water District.



James K. Lee, Secretary-Treasurer, CVWD

November 9, 2023

Date

Field Maintenance and Operations Report

October 2023

0

Water Main Repairs

18

Water Service

Repairs: 10 Replacements: 8

1

After Hours Leaks/Repairs

14,603'

Sewer Maintenance

Clean: 2,957' Inspect: 11,646' Reports: 42

- **Field Maintenance Projects**

- * Rosemont Pothole – 12" main & casing
- * FMWD Berkshire manifold– Remove & replace 24" butterfly valve
- * LADWP West End Intertie – flow test with engineering
- * E-1044 – 1 ½ Meter Survey

- **Operations Report**

- * Chloramine Conversion & prep for transition (continued)
- * Ordunio Reservoir– replace tank mixer
- * Well #2 – Aronite blending procedure submitted to DDW
- * Well #14 Pump – Well rehab approaching completion

- **Electrical/Telemetry**

- * E-962 & E-939 – integration build with Apex
- * Meter Testing – pump efficiency & production flow testing at booster 32, 33 & 34 and wells 8, 10, 12 & 16

- **Wastewater**

- * Lift Station Visits: 4 (De-rag pumps, check valves & add degreaser)

Field Maintenance and Operations Report

October 2023

Days without a lost-time incident: **657**

120+

Water Quality Samples w/ additional
PFOS monitoring samples

102

Valves

Replace: 0 Exercise: 102 Install: 0

80

Fire Hydrant Maintenance

Rebuild: 0 Replace: 0 Inspect: 80

0

Water Meter Replacement

¾": 0, 1": 0, 1.5": 0, 2": 0, 3": 2, 4": 0

- **Training/Cross Training**

- * Water Smart Conference
 - Kellen B
 - Darlene T

- **Events**

- * 6th Annual Chili Cook-Off

- **New Certification**

- * None to report

- **Safety**

- * The Great Shake Out
 - All hands

CRESCENTA VALLEY WATER DISTRICT

2700 FOOTHILL BOULEVARD
LA CRESCENTA, CALIFORNIA

To be held on
November 8, 2023 at 3:30 PM

Agenda for the Meeting of the Engineering & Operations Committee
of the Crescenta Valley Water District

Posted November 7, 2023 at 3:30 PM

TELECONFERENCING NOTICE

This meeting will be conducted in person at the address listed above. Members of the public may also participate virtually by using a touchtone phone. You may select any of the following phone numbers (there are more than one for increased reliability during this time of increased phone traffic).

(669) 900-6833

(346) 248-7799

(929) 205-6099

(253) 215-8782

(301) 715-8592

(312) 626-6799

Then, enter Access Code: 828 7717 2920

Those members of the public who are able to and would like to additionally participate with a computer through videoconference may access the Zoom videoconferencing tool available at the following link:

<https://us02web.zoom.us/j/82877172920>

If there is a disruption of service, this meeting will continue without remote participation. The remote participation option is provided as a convenience to the public and is not required.

Any person may make a request for a disability-related modification or accommodation needed for that person to be able to participate in the public meeting by contacting the District by phone or in writing at customerservice@cvwd.com. Requests must specify the nature of the disability and the type of accommodation requested. A telephone number or other contact information should be included so that District staff may discuss appropriate arrangements. Persons requesting a disability-related accommodation should make the request with adequate time before the meeting for the District to provide the requested accommodation.

Call to Order

Adoption of Agenda

Public Comment:

At this time, members of the public shall have an opportunity to address the Committee on items of interest that are within the subject matter jurisdiction of this Committee. This opportunity is non-transferable, and speakers are limited to three (3) minutes each. Under the provisions of the Brown Act, the Board is prohibited from taking action on items not listed on the agenda, except under certain circumstances.

Action Item(s)

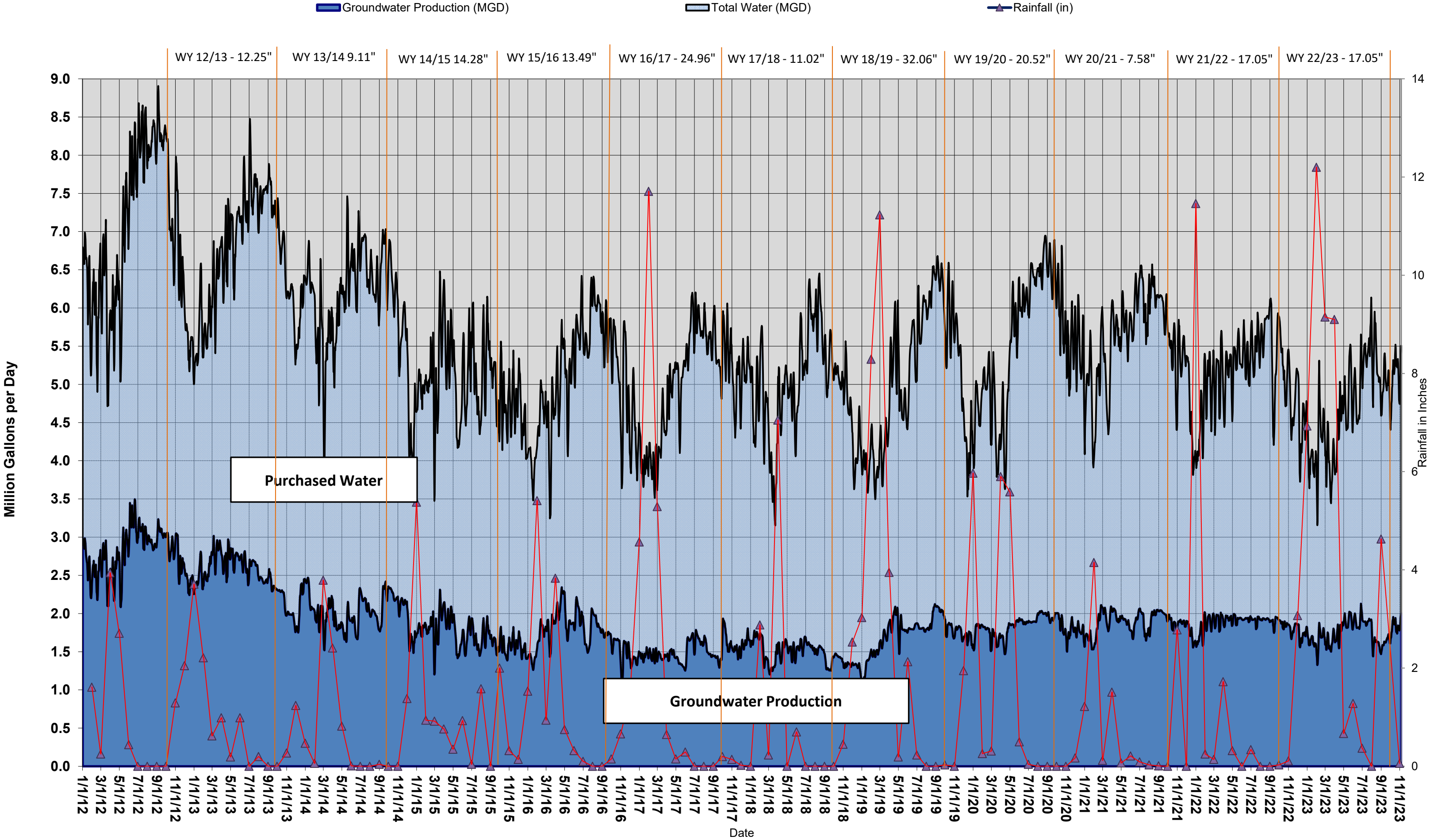
The public shall have an opportunity to comment on any action item as each item is considered by the Committee. This opportunity is non-transferrable, and speakers are limited to one two-minute (2) comment each.

1. Status of Local Water Supply
2. Report Review for Conversion to Chloramine Disinfection
3. LADWP-CVWD Emergency Interconnection
4. Rosemont Overcrossing Update
5. Montrose Pipeline Replacement Update
6. 23/24 CIP Update
7. PFAS Update and Discussion

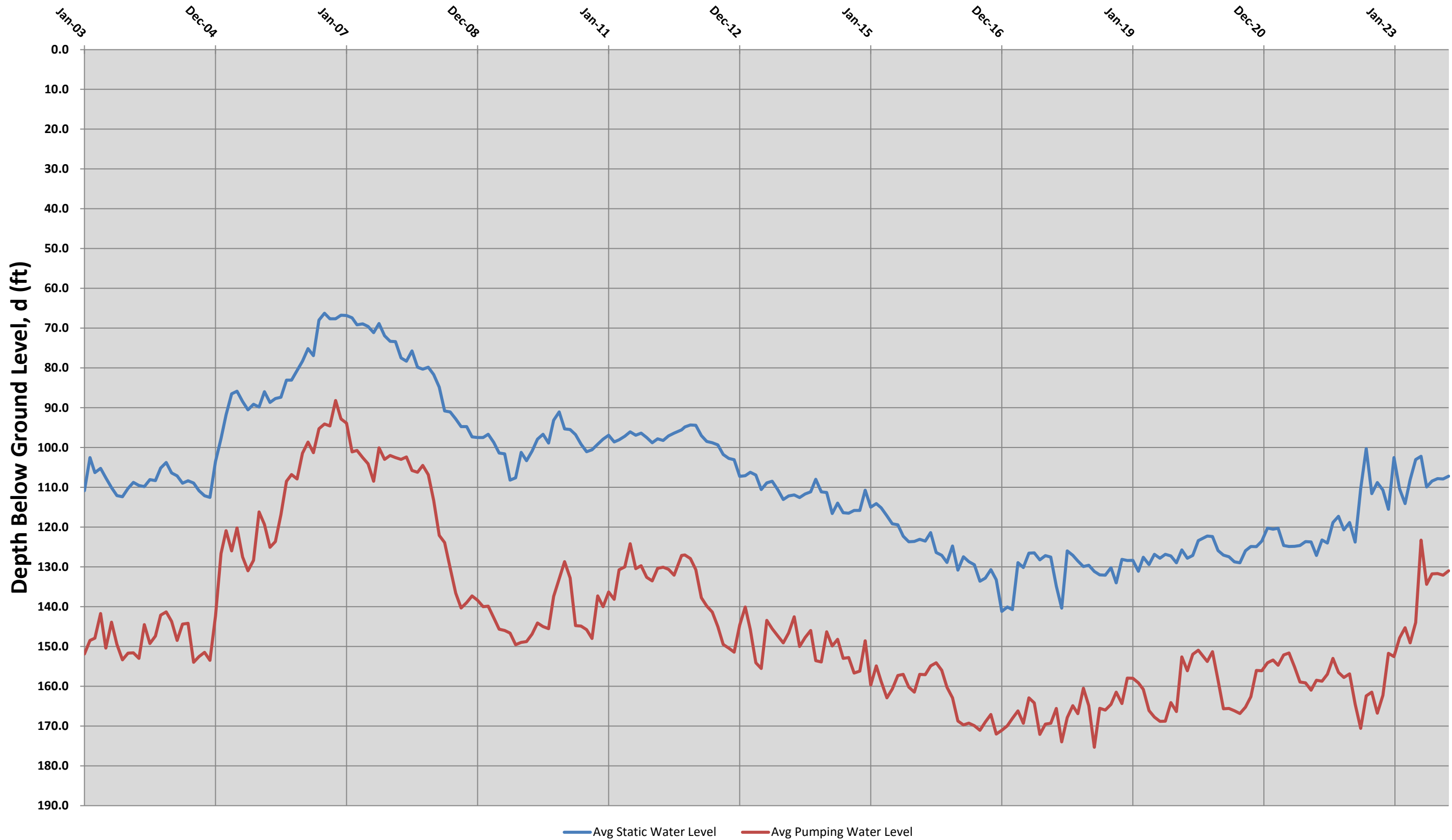
Committee Members' Request for Future Agenda Items

Adjournment

Water Production Chart w/ Rainfall 2012-2023



Average Well Elevation Levels 2003-Present



Monitoring Well Static Level Measurements	MW 1	MW 2	MW 4	VD-VPB-01	VD-VPB-02	VD-VPB-05	VD-VPB-06	VD-VPB-07
Location	CV Dog Park	Orangedale & Mira Vista Park	Encinal & Pennsylvania SE corner	Mayfield Ave. 120' E. of La Crescenta Ave	Sunnyview Dr. 60' E. of Oceanview Blvd	Broadview Dr. 135' E of Roselawn Ave	Fairchild St. 200' E of Dunsmore Ave	Orange Cove Ave. 281' E of Briggs Ave
Construction Date	Jan-03	Jan-03	Dec-02	Jan-90	Dec-89	Jan-90	Jan-90	Dec-89
Casing Depth	120	300	310	210	136	156	96	216
Screen Depth	40 - 100	200 - 280	200 - 290	190 - 210	116 - 136	136 - 156	76 - 96	196 - 216
Top of Column Elevation	1431.7	1295.9	1446.7	1395.4	1169.0	1216.1	1647.8	1844.8
Date	SWL, ft bgs	SWL, ft bgs	SWL, ft bgs	SWL, ft bgs	SWL, ft bgs	SWL, ft bgs	SWL, ft bgs	SWL, ft bgs
Mar-03	28	202	140					
Jun-03	27	202	143					
Sep-03	29	200	145					
Dec-03	28	200	144					
Mar-04	20	203	140					
Feb-05	22	204	143					
Jan-06	22		119					
Sep-06	24	192	106					
Jan-07	24	184	108					
Jan-09			127					
Feb-10		203	130					
Mar-10	28	198	129					
Apr-10	26	198	128					
May-10	26	203	131					
Nov-10	31	195	134					
Dec-10	31		134					
Jan-11	28		136					
Feb-11	28		136					
Mar-11	27		135					
May-11	23		132					
Jul-11	24		133					
Aug-11	24		133					
Sep-11	27		135					
Dec-11	27		134					
May-12			137					
May-13	32							
Apr-17	35							
Apr-23	26	205	154	210	116	142	75	216
Oct-23	29	202	148	210	116	141	76	168

CRESCENTA VALLEY WATER DISTRICT

STAFF REPORT

Information Item No. 2
November 8, 2023

To: Engineering and Operations Committee
From: Brook Yared, M.S., P.E. – Interim Director of Engineering & Operations
Subject: Conversion to Chloramines, Project E-1052 – WQTS Technical Memorandum Review

INFORMATION ITEM:

Disinfection Conversion to Chloramines, Project E-1052 – WQTS Technical Memorandum Review

BACKGROUND:

In August 2018, with groundwater production not fully recovered from the past drought, CVWD's water supply blend shifted to 40% groundwater and 60% imported water. This, coupled with the additional chlorine needed to achieve breakpoint chlorination in the system, caused an increase in total trihalomethanes (TTHM) levels at the four (4) regulatory compliance points within the distribution system. Staff implemented a water quality sampling plan to measure levels of TTHMs weekly to ensure CVWD complies with Department of Drinking Water's (DDW) Disinfection By-product Rule. As shown on the attached charts, since August 2018, CVWD's TTHM quarterly running annual average level has trended below the maximum contaminate level (MCL) of 80 micrograms/liter. Levels have been well below the MCL since these measures were implemented. Since starting this work in 2018, CVWD has installed new equipment to help reduce TTHM production while on free chlorine and reduce "water age." These improvements have the added benefit of contributing to more advanced control and monitoring strategies for chloramine disinfection.

After receiving direction from the Engineering Committee at the March 1, 2023, meeting, staff has contracted with Water Quality and Treatment Solutions (WQTS), one of the lead consultants in the Chloramine permit development undertaken in 2018, to review all permitting requirements, assist in ordering any additional probes and/or analyzers, and developing a strategy to transition CVWD's water system to chloramine disinfection.

DISCUSSION:

WQTS completed their review of water quality and flow data across CVWD's distribution system. WQTS highlighted several common issues related to conversion from free chlorine disinfection to Chloramines. WQTS regards the risk of converting to chloramine disinfection to be very low. They also estimate the cost of doing a demonstration using CVWD source water in actual pipe taken from our distribution system to be between \$500,000 - \$800,000. At this cost, WQTS is recommending that the risks described in their report do not warrant the cost of a conversion demonstration. Staff wants to highlight and discuss these issues, the likelihood of their occurrence, and review the benefits of conversion.

Chloramine Decay and Water Age: Similar to free chlorine, chloramine decays over time in a distribution system. The extent of chloramine loss depends on several factors including water temperature, water age, and system cleanliness. During hot summer months, chloramine will decay faster than it does in colder winter months just like what is currently experienced with free chlorine. Water age also plays a role, since the longer the water resides in the distribution system storage reservoirs, the further the chloramine residual decays. When analyzing water age across the distribution system, it was discovered that the Cresta Heights reservoir serving Zone 8 was increasing the overall water age in Zone 8 and all above zones. Cresta Heights consists of two 500,000-gallon reservoirs that serve a small population. Water can sit in this reservoir for longer periods than other higher demand zones in similar elevations. Staff has removed one of the tanks at Cresta Heights from operation, which has prevented disinfection byproduct formation in Zone 8 and higher zones. This should translate to a reduction in risk of forming nitrifying bacteria when converting to chloramines.

Nitrification: Nitrification is an issue in all systems that utilize chloramine disinfection. Nitrifying bacteria do not cause any harm and exist everywhere in nature. The concern about the growth of nitrifying bacteria is the fact that they also react with chloramine and thus accelerate the loss of chloramine residual in the distribution system. In 2019, WQTS put together a Nitrification Monitoring and Control Plan, which staff has since implemented, to get ahead of nitrification issues and have an action plan to mitigate nitrification should we experience it in the system. Should nitrification occur, CVWD would need to flush dead ends and reservoirs to purge the nitrifying bacteria, which would represent a large cost if/when it were to occur.

Discolored (Red) Water: While it is impossible to predict, some residences may experience discolored tap water within a period after conversion to chloramine. This is caused by the dissolution of iron from distribution system pipes or from older galvanized iron pipes in people's homes. Therefore, this is limited to areas served by unlined iron pipes in the distribution system and to homes with galvanized plumbing. WQTS reviewed CVWD's customer lateral material spreadsheet and reviewed the amount of unlined water main material as part of their recent analysis. Generally, issues with red water surrounding chloramine conversion are difficult to isolate, since most case studies available also incorporate a significant change to the source water being introduced into the system. South Pasadena being one such case, changed from serving mostly groundwater (free chlorine) to serving mostly imported water (chloramine) after experiencing water quality issues in their groundwater basin. This was not only a disinfection method change but also a complete change in their water composition. They experienced water discoloration issues until their groundwater wells were reactivated and they were able to switch back to free chlorine disinfection. A second case study from the Serrano Water District (Serrano) in Orange County tells a different story. Serrano converted to chloramine disinfection without changing the composition of their water source and experienced no water discoloration. As with nitrification, there is the real cost of flushing water from the system should water discoloration become an issue.

Break Point Chlorination Savings: Currently, CVWD uses break point chlorination to convert imported water from chloramine disinfection to free chlorine disinfection. This requires high doses of free chlorine. This free chlorine then interacts with the chloramines in our imported water until all chloramines are destroyed and free chlorine is established as the main disinfection method. Dosing groundwater with chloramines would take roughly 5 ppm less of chlorine disinfection to establish a sufficient chloramine residual. This represents approximately 40% reduction in sodium hypochlorite purchases with slight cost increases for monitoring of ammonia analyzer probes.

Disinfection Byproduct Formation Reduction: Since 2019, CVWD has increased our TTHM sampling throughout the system, to avoid facing the same compliance issues as in 2018. While compliance sampling has remained low, staff did see an increase in TTHM formation at noncompliance locations while Paschall Booster B was out of service. Converting to chloramines would eliminate the need for this additional sampling, although this cost will likely be replaced with additional sampling as part of the Nitrification Monitoring and Control Plan.

Also, disinfection byproduct rules are expected to change in the coming years with a reduction to the MCL from 80 ppm to an unknown level. With current TTHM levels at compliance points within the District, a reduction to 60 ppm of TTHMs would only be achievable with a conversion to Chloramines.

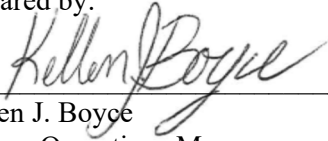
Regional Emergency Interconnection: CVWD has access to two Interconnections for emergency water supply, one with Glendale Water and Power and the other connection with Los Angeles Department of Water and Power in case there is an interruption of supply coming from the Foothill Municipal Water District (FMWD). Both interconnections utilize chloramine disinfection and do not currently have injection points in place to perform break point chlorination. Also, La Cañada Irrigation District (LCID) and all FMWD Member Agencies currently utilize chloramine disinfection their systems. FMWD may need to rely on our emergency interconnections to supply Member Agencies with water during upcoming shutdowns. Currently, the difference in our disinfection methods makes supplying FMWD Member Agencies difficult.

Groundwater Contamination: Similar to what occurred in the City of South Pasadena, emerging or currently unregulated contaminants could necessitate that CVWD turn off several wells. With MTBE, staff shut down well 5, which is our largest groundwater producing well. The results of PFAS testing and health findings may also require that our wells be shut down in response. Converting to chloramines now would eliminate many risks associated with converting to chloramines while simultaneously changing source water conditions.

Recommendation:

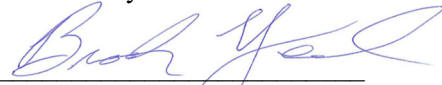
WQTS regards the risk of converting to chloramine disinfection to be very low. They also estimate the cost of doing a demonstration using CVWD source water in actual pipe taken from our distribution system to be between \$500,000 - \$800,000. At this cost, WQTS is recommending that the risks described in their report do not warrant the cost of a conversion demonstration.

Prepared by:



Kellen J. Boyce
System Operations Manager

Submitted by:



Brook Yared, M.S., P.E.
Interim Director of Engineering & Operations

Attachments:

1. WQTS - Impact of Chloramine Conversion on Water Quality
2. CVWD TTHM Compliance Monitoring Table and Graphs
3. WQTS – Nitrification Monitoring and Control Plan

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Water Quality & Treatment Solutions, Inc.
An Environmental Engineering & Science Consulting Company

TECHNICAL MEMORANDUM

www.WQTS.com

Date: October 11, 2023

To: Mr. Brook Yared, P.E.
Engineering Manager
Crescenta Valley Water District

WQTS Project No.: 0137.0030

From: Issam Najm, Ph.D., P.E.

Project: Technical Support for Implementation of Chloramine Conversion

Re: Impact of Chloramine Conversion on Water Quality

The Crescenta Valley Water District (District) serves a blend of local groundwater and treated surface water purchased from the Metropolitan Water District of Southern California (MWD) through the Foothill Municipal Water District (FMWD). The District's groundwater is chlorinated, while the purchased MWD water contains chloramine. Blending of chloramine with chlorine would result in the rapid loss of disinfectant residual (both chlorine and chloramine) in the distribution system. For this reason, the District either has to add chloramine to its groundwater to blend with the chloraminated MWD water or convert the chloraminated MWD water to free chlorine to blend with the chlorinated groundwater. The District has thus far chosen the latter strategy and implemented breakpoint chlorination of the MWD water to destroy the chloramine and convert it to chlorine, which allowed the District to maintain free chlorine in its distribution system.

Unfortunately, free chlorine contact with water containing elevated levels of natural organic matter (NOM) results in the formation of disinfection by-products, DBPs, including two regulated DBPs: trihalomethanes, THMs, and haloacetic acids, HAAs, both of which have strict limits in drinking water. While the District's groundwater is low in organic content, the NOM levels in the imported MWD water are significantly higher. The MWD water also contains elevated levels of bromide, Br^- , which enhances the formation of THMs and HAAs in chlorinated water. Thus, the levels of DBPs formed in the District's distribution system is highly dependent on the blend ratio between MWD water and local groundwater. The DBP levels formed in chlorinated MWD water also depend on the blend ratio between Colorado River water, which contains lower NOM concentrations, and State Water Project water with higher NOM concentrations.

In past years, the District relied more heavily on its groundwater supply than on imported MWD supply. However, due to the prolonged drought period of 2012 through 2017 which resulted in diminished groundwater supply, the District greatly increased its reliance on MWD water to meet its demand resulting in high DBP levels in the District's drinking water. Figure 1 shows the compliance levels of THMs in the District's drinking water system at its four compliance locations as compared

to the regulatory limit of 80 µg/L and an operational goal of 64 µg/L (80% of the MCL). The green triangles are individual quarterly averages, while the red circles are the Locational Running Annual Average (LRAA) compliance values. The profiles in Figure 1 show that the District came very close to violating the THM MCL in 2018 as it increased reliance on MWD water, but the compliance levels have since decreased in concentration.

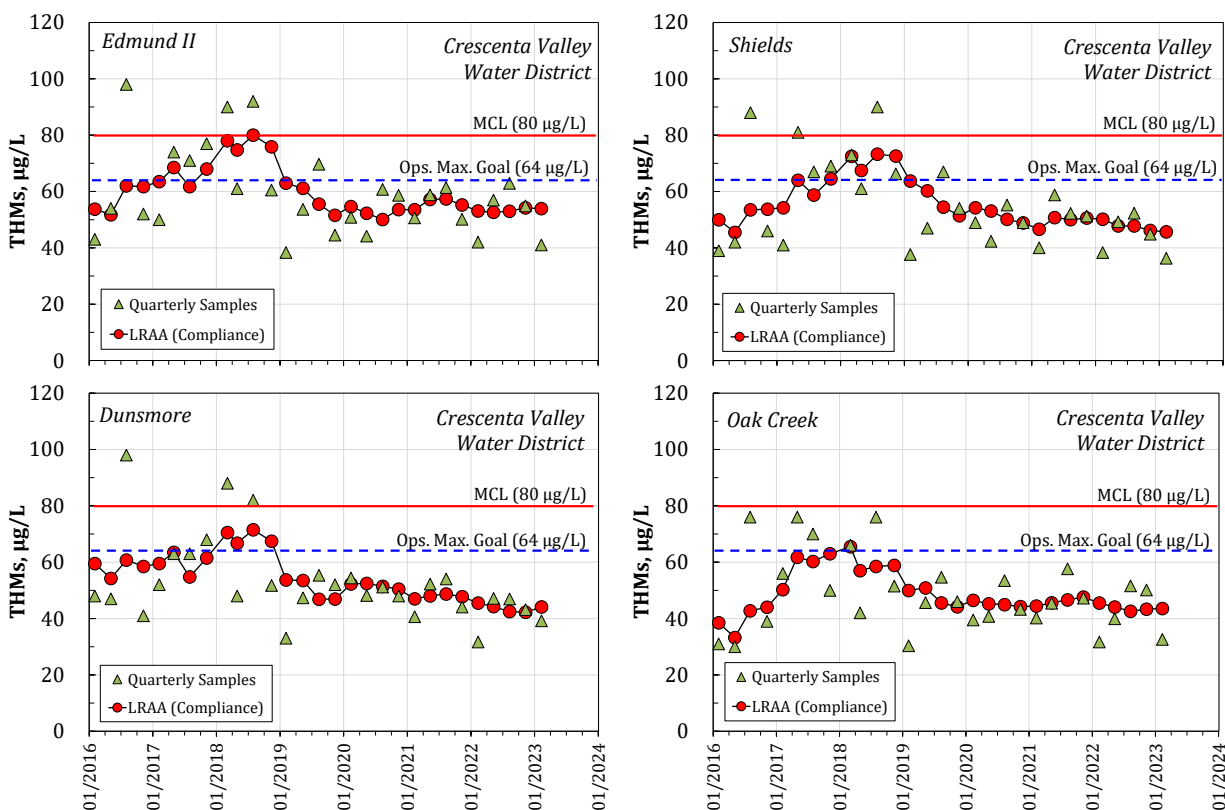


Figure 1 – THM Profiles at the District's Four Compliance Locations

In response to the rise in DBP formation in 2018, the District made the decision to convert the distribution system disinfectant from free chlorine to chloramine. Since then, the District completed the following actions:

1. Installed an ammonia feed system at the Glenwood WTP
2. Installed an ammonia feed system at the Mills WTP
3. Installed an ammonia feed system at the Well 2 Nitrate Treatment Plant
4. Installed new chlorine and ammonia feed systems at the Pickens Tank
5. Installed several online chlorine analyzers throughout the distribution system

Then, in preparation for the conversion, the District also issued public notification and conducted public information campaigns about the planned conversion, developed a Nitrification Monitoring and Control Plan (NMCP), and applied for and received a permit amendment to convert the system from free chlorine to chloramine. However, the District held off on converting to chloramine as water

quality conditions changed and as groundwater supplies increased. In addition, the COVID-19 pandemic forced the District – and all other Districts – to realign their priorities regarding the operation of their water systems. With this effort, WQTS is assisting the District in re-starting the chloramine conversion effort beginning with an analysis of the potential impacts of chloramine conversion on the District’s water quality.

1.0 SYSTEM CONFIGURATION

Figure 2 presents a detailed schematic of the hydraulic zones in the District’s distribution system, with specific emphasis on water flow path from the lower zones to the upper zones, and storage volume in each zone. The schematic also identifies the locations of chlorine and ammonia feeds, as well as the locations of the online chlorine analyzers.

The District operates three Water Treatment Plants (WTPs): The Glenwood WTP that uses ion-exchange (IX) to remove nitrate from water, the Mills WTP which relies on blending to maintain nitrate below the maximum contaminant limit (MCL) of 10 mg/L as N, and the Aronite™ WTP which relies on biological treatment to remove nitrate from Well 2 water. Water from the Glenwood WTP is diverted to the Ramsdell Blending Station where it blends with imported FMWD water received through the Briggs meter. The blended water then flows to the 3-MG Encinal Reservoir that serves the water demand in Zone 1.

Water is pumped from the Encinal Reservoir into Zone 2 which contains two storage reservoirs: Williams and Ordunio. The Well 2 water treated at the Aronite™ WTP is mostly blended with system water in Ordunio Reservoir. Water from the Oceanview FMWD meter may enter the system in Zone 2, primarily blending into Williams Reservoir.

Water pumped out of Williams Reservoir is then blended with water pumped from the Mills WTP and any water purchased from FMWD at the Paschall meter and the blended water is directed to Zone 4 before it flows into Oak Creek Reservoirs. Water flows down from Zone 4 into Zone 3 and its Rosemont Reservoir.

Water is pumped from Rosemont Reservoir and from Oak Creek Reservoirs up to Zone 5, which contains Eagle Canyon and Markridge Reservoirs. Water is then pumped from Markridge Reservoir into Zones 6 (Goss Canyon), Zone 7 (Dunsmore), and Zone 8 (Cresta Heights). Water is also pumped from Eagle Canyon reservoir into Zone 6 (Goss Canyon).

Water continues to be pumped from Goss Canyon Reservoir in Zone 6 to Zone 9, which contains Edmund Tanks 1 and 2. Water from Edmund 1 is then pumped up to Zone 11 (Pickens Canyon) and water from Edmund 2 is pumped to Zone 10 (Shields). Water is also pumped from Zone 8 (Cresta Heights) to Zone 9 (Edmund 2), but as discussed later in this TM, this is seldom practiced.

Finally, a small flow stream of 25 to 30 gpm collected from Pickens Tunnel is dosed with chlorine and ammonia and blended into Pickens Canyon Reservoir serving the water demand in Zone 11.

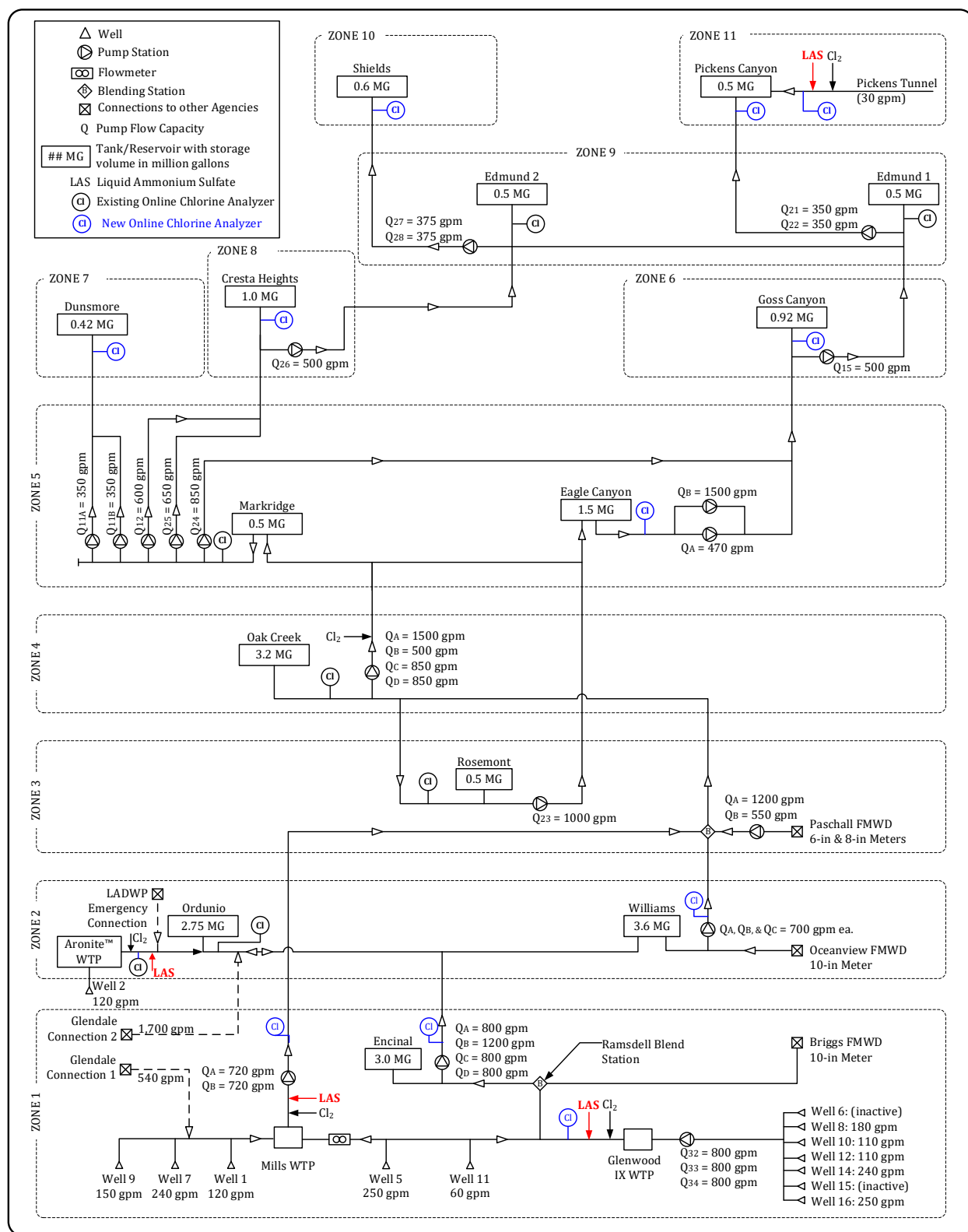


Figure 2 - Crescenta Valley Water District System Components and Hydraulic Zones

2.0 POTENTIAL CHALLENGES WITH CHLORAMINE CONVERSION

Switching the disinfectant in a distribution system from free chlorine to chloramine is likely to have no noticeable impact on most of the residents. The District has already gone through the public notice process about the conversion to chloramine and customers should have already made the changes to their aquariums and any dialysis machines to filter out chloramine. However, the District's customers can benefit from a second reminder of this conversion before it takes place. The remaining issues of concern are related to three main potential challenges that are discussed briefly herein.

2.1 Chloramine Decay and Nitrification

Similar to free chlorine, chloramine decays over time in a distribution system. The extent of chloramine loss depends on several factors including water temperature, water age, and system cleanliness. During hot summer months, chloramine will decay faster than it does in cold(er) winter months just like what is currently experienced with free chlorine. Water age also plays a role since the longer the water resides in the distribution system storage reservoirs, the further the chloramine residual decays. Finally, deposits in reservoirs and pipes harbor biofilms that further consume the disinfectant in the water. Ensuring that reservoirs and pipes remain clean from such deposits helps improve the stability of the disinfectant in the water.

When chloramine decays in water, it releases back into the water the ammonia that was used to generate it. The released ammonia can serve as a nutrient to bacteria and could thus lead to excessive biological growth in the distribution system, especially storage reservoirs. The type of bacteria that consumes ammonia are referred to as Nitrifying bacteria, and their act of consuming ammonia is referred to as "Nitrification". Nitrifying bacteria do not cause any harm and exist everywhere in nature. The only concern about the growth of nitrifying bacteria is the fact that they also react with chloramine and thus accelerate the loss of chloramine in the water. Ultimately, it is the loss of chloramine in the system that raises the concern over the potential growth of coliform bacteria in the system.

In preparation for the conversion to chloramine, the District developed a Nitrification Monitoring and Control Plan (NMCP) which will serve as a guide to District staff to track the development of nitrification activities in the various reservoirs and take measures to minimize the growth of nitrifying bacteria.

2.2 Potential for Discolored Water Events

While it is impossible to predict, some residences may experience discolored tap water within a period of time after conversion to chloramine. The color may range from faint yellow tint to dark brown. This is caused by the dissolution of iron from distribution system pipes or from old(er) galvanized iron pipes in people's homes. Therefore, this is limited to areas served by unlined iron

pipes in the distribution system and to homes with galvanized iron pipes. The following is a brief description of why this may happen and how it can be triggered by the conversion to chloramine.

When water flows through an iron pipe, the bare iron/steel surface is exposed to water containing oxygen, chlorine, or chloramine, all of which are referred to as “oxidants”. With this exposure to oxidants, the solid iron material is oxidized to ferrous iron (Fe^{2+}), which is highly soluble in water. At elevated concentrations, this dissolved iron will begin to appear as a yellow or brown color in the water. Continued exposure to the water further oxidizes this soluble ferrous iron, Fe^{2+} , to ferric iron, Fe^{3+} , which is highly insoluble. The ferric iron begins to form a hard layer over the ferrous iron which then prevents the underlying ferrous iron from continuing to dissolve into the water. The stronger the oxidant type and concentration in the water, the harder the ferric layer covering the soluble iron. Chloramine is a weaker oxidant than free chlorine under typical concentrations in drinking water, and thus a change from free chlorine to chloramine has the potential to weaken this hard layer. The weaker the layer gets, the more of the underlying soluble iron will dissolve into the water.

However, many factors other than the type of disinfectant also contribute to the hardness of the protective ferric layer, including the calcium carbonate precipitation potential and the mineral content of the water. Therefore, it is not possible to predict if the switch from chlorine to chloramine alone is sufficient to cause enough weakening of the protective layer to result in a significant rise in the iron concentration in the water. In fact, almost all of southern California maintains chloramine in its drinking water distribution system and clearly does not experience discolored water. This is because the protective scale in the unlined iron pipes has adapted to chloramine as the oxidant in the water. Therefore, if water discoloration does take place, it is not because of chloramine, but rather because of the switch from free chlorine to chloramine.

WQTS worked with the District to identify the locations of the unlined iron pipes in the distribution system. While it is not possible to know the number of homes with galvanized iron plumbing, the District does maintain a database on the material of service lines (SLs) between the pipe mains in the streets and individual properties. This information was analyzed as part of this work and is presented and discussed in this TM.

2.3 Potential Increase in Lead and Copper Release

While it is highly unlikely, it is important to recognize that the same mechanism discussed above about the potential release of dissolved iron into the water with the switch from free chlorine to chloramine may also apply to other metal surfaces in contact with the water. Of particular interest are lead and copper due to their potential adverse health effects. While iron release into the water can be detected as discolored water, a rise in the concentrations of lead and/or copper in tap water cannot be detected without laboratory analysis of water samples.

To address this concern, close monitoring of the lead and copper levels in tap water will be conducted after chloramine conversion and compared to their levels measured under current free chlorine conditions. Assuming chloramine conversion will be completed during the fall of 2023, two 6-month

Lead-and-Copper Rule (LCR) monitoring campaigns will be conducted during the 1st half and 2nd half of 2024 as required by DDW.

3.0 POTENTIAL FOR CHLORAMINE LOSS AND NITRIFICATION

In order to assess the potential for chloramine loss in the system, the data provided by the District was analyzed to estimate the water age through the various zones and reservoirs, and to study the fate of free chlorine over winter and summer seasons. The District's reservoir cleaning and inspection records were also obtained and analyzed. The outcome of these analyses is presented in this section.

3.1 Water Age

A longer water age results in further decay of the chlorine residual. In the lower zones of the system, the water has a relatively low age, and the chlorine residual is generally the highest in the system. As the water is pumped up to higher zones, the water age increases due to the additional storage volume as well as the prevalence of lower water demand in the upper zones resulting in a significant decrease in the chlorine residual concentration. Thus, a detailed analysis of 5-minute intervals of all pump flowrate data and water reservoir level data were analyzed to conduct an overall mass balance on each zone in order to estimate the water demand in that zone, and thus the water age. This analysis was conducted for the winter and summer seasons based on data from the Winter and Summer of 2022.

The methodology used for estimating the water demand in each zone was as follows:

For each zone, the water demand in that zone between two consecutive times, t_i and t_{i+1} , was first estimated using Equation 1:

$$Demand|_{t_i \rightarrow t_{i+1}} = \left[\frac{Q_{in,t_i} + Q_{in,t_{i+1}}}{2} \right] \times (t_{i+1} - t_i) - \left[\frac{Q_{out,t_i} + Q_{out,t_{i+1}}}{2} \right] \times (t_{i+1} - t_i) - [V_{t_i} - V_{t_{i+1}}] \quad (1)$$

Where Q_{in,t_i} = Flowrate into the zone at time t_i

$Q_{in,t_{i+1}}$ = Flowrate into the zone at time t_{i+1}

Q_{out,t_i} = Pumped flowrate out of the zone at time t_i

$Q_{out,t_{i+1}}$ = Pumped flowrate out of the zone at time t_{i+1}

V_{t_i} = Storage volume in the zone at time t_i

$V_{t_{i+1}}$ = Storage volume in the zone at time t_{i+1}

In the data received from the District, the span of time between t_i and t_{i+1} was five (5) minutes, and thus Equation 1 was used to estimate the water demand in each zone over each five-minute interval. A 24-hr rolling average of the calculated 5-minute demand values was then calculated to smooth out

large swings in the calculated 5-minute demand values resulting mostly from inaccuracies in the water level readings in each reservoir.

The outcomes of the analysis for Winter 2022 and Summer 2022 are presented in Figures 3 and 4, respectively. The comparison shows that the water demand calculated herein using reservoir volume balance agrees with the water production from all the District's sources. Therefore, the methodology used provides a reasonable estimate of the water demand, and thus water age in each zone.

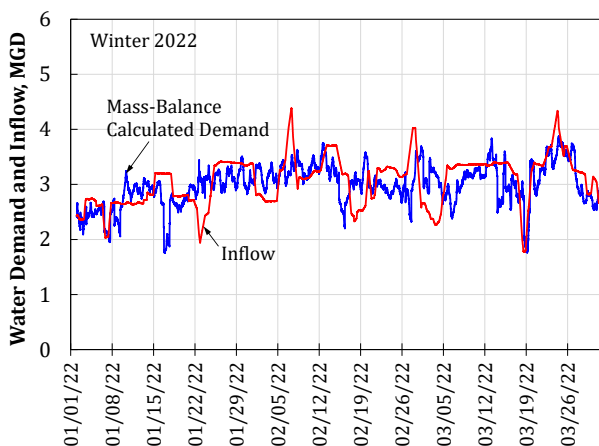


Figure 3 – Comparison between the Winter 2022 Water Demand Calculated herein based on Mass-Balance and Water Inflow from all Sources

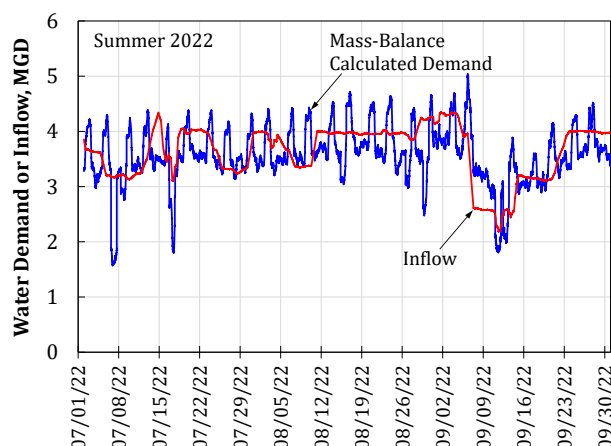


Figure 4 – Comparison between the Summer 2022 Water Demand Calculated herein based on Mass-Balance and Water Inflow from all Sources

Finally, the split between surface water (i.e., FMWD water) and local groundwater depends on various factors. The District relies on FMWD water to meet its demand as well as blend down the nitrate in the groundwater. During winter 2022, the District relied mostly on its groundwater supply as demonstrated by the profile in Figure 5. With the higher demand in the summer months, the District water demand was split almost equally between groundwater and FMWD water (Figure 6).

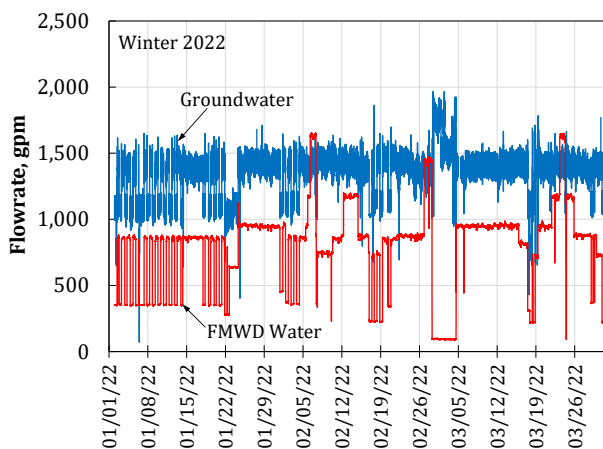


Figure 5 – Groundwater vs. FMWD Water Supply during Winter 2022

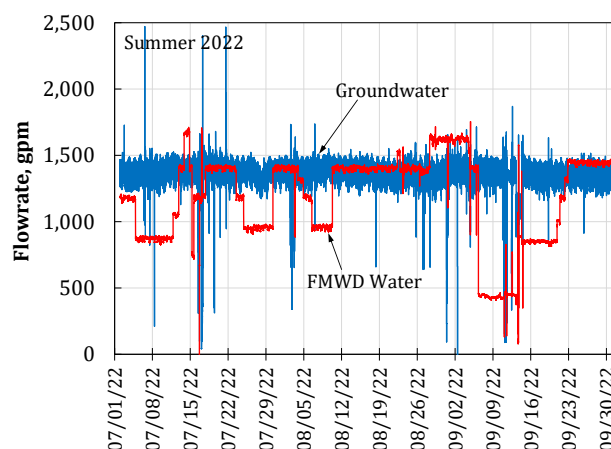


Figure 6 – Groundwater vs. FMWD Water Supply during Summer 2022

The calculated daily water demand values presented above were then used to estimate the 24-hr running average water age in each hydraulic zone in the system. The calculation was based on Equation 2 in which the average storage volume recorded over a 24-hr period was divided by the sum of the average pumped flowrate out of each storage volume and the average water demand for that 24-hr period estimated using the approach described earlier.

$$Water\ Age|_{Ave.} = \frac{[Volume]_{Ave.}}{[Q_{out,Ave} + Demand_{Ave}]} \quad (2)$$

The water age analysis was conducted for each zone individually with the exception of Zones 3 and 4 which were treated as one zone because the water can flow from 3 to 4 and back from 4 to 3 before it is pumped up to Zone 5 as shown in Figure 2. The cumulative water age in each zone was then calculated as the sum of the water age estimates for all the preceding zones. It is important to note that one simplifying assumption of this analysis is that the storage volume in each zone is treated as one mixed volume. In zones that have multiple reservoirs, especially those that are apart from each other, this approach can result in high inaccuracies. The most significant one is in Zone 2 where the volumes of Williams and Ordunio Reservoirs were treated as one volume, when in reality most of the water flow out of the zone does not pass through Ordunio Reservoir on the way up to the upper zones. Therefore, the water age through Zone 2 is somewhat over-estimated. However, the water age in the Ordunio reservoir and its service area is under-estimated since the water stagnates in that section of the zone.

An analysis of the operating conditions of Zone 6 and Zone 8 showed that minimal water is pumped from Zone 8 to Zone 9 and that the vast majority of Zone 9 water is pumped from Zone 6. The pumping rates in and out of Zones 6 and 8 between January and March 2022 are presented in Figure 7 to illustrate this point. In the upper chart, water is pumped from Zone 5 into Zone 6 at about 600 gpm and is pumped out of Zone 6 to Zone 9 at about 500 gpm on a daily basis. However, the lower chart shows that while water is pumped approximately 3 times a week into Zone 8, it was pumped out to Zone 9 only a few times over the three-month period presented. This operational mode was also confirmed by District staff.

Based on the preceding analysis, the water age estimation was conducted by setting Zone 8 as a terminal zone, similar to Zone 7, and thus the water age estimation was focused on four routes:

1. Zone 1 → Zone 2 → Zones 3 & 4 → Zone 5 → Zone 7
2. Zone 1 → Zone 2 → Zones 3 & 4 → Zone 5 → Zone 8
3. Zone 1 → Zone 2 → Zones 3 & 4 → Zone 5 → Zone 6 → Zone 9 → Zone 10
4. Zone 1 → Zone 2 → Zones 3 & 4 → Zone 5 → Zone 6 → Zone 9 → Zone 11

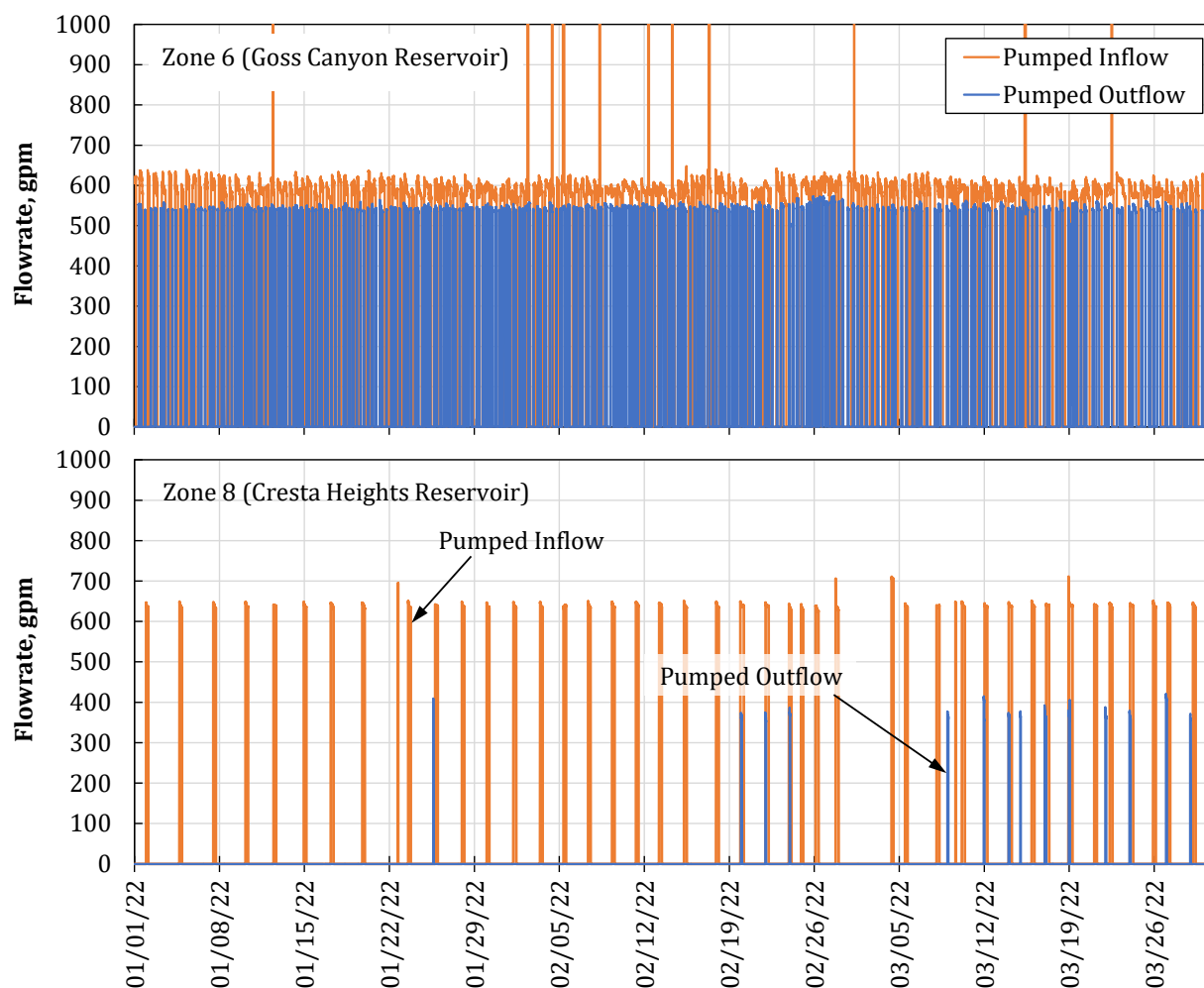


Figure 7 – Difference in Inflow and Outflow Patterns between Goss Canyon Reservoir in Zone 6 (upper chart) and Cresta Heights Reservoir in Zone 8 (lower chart)

Table 1 presents a summary of the water age estimates for all four water routes under the Winter and Summer conditions of 2022. The values presented include the average water age, as well as the 10th percentile and 90th percentile values for each route in each season. The highest average water age was up to Zone 10 (Shields) and was estimated at 19 days in the Winter season, with a 90th percentile of 24 days, and then 15 days in the Summer season with a 90th percentile of 19 days. While the summer water age is lower than that in the winter, the higher summer temperatures tend to cause greater loss of disinfectant residual in the storage tanks as discussed later herein.

While Table 1 presented the overall water age from Zones 1 to the terminal zones, the water age through each zone under each season are also presented in the subsequent figures. Figure 8 presents a breakdown of the water age by zone along the path from Zone 1 to Zone 7 (upper chart) and from Zone 1 to Zone 8 (lower chart) during Winter 2022. The upper chart shows that the total age of the water in Zone 7 (Dunsmore Reservoir) in Winter 2022 was generally no more than 10 days with the majority of it in Zone 2 and Zone 7. The lower chart shows that the age of the water in Cresta Heights

Reservoir (Zone 8) was mostly between 10 and 15 days, most of which occurred in the Cresta Heights reservoir.

Table 1 – Summary of 10th Percentile (%ile), Average, and 90th %ile Water Age Estimates (Days) for Winter 2022 and Summer 2022 Conditions

Water Path	Winter 2022			Summer 2022		
	10 th %ile	Average	90 th %ile	10 th %ile	Average	90 th %ile
1. Up to Zone 7	9.1	11	14	7.0	9.2	12
2. Up to Zone 8	12	15	19	8.5	12	15
3. Up to Zone 10	15	19	24	11	15	19
4. Up to Zone 11	13	18	25	10	14	17

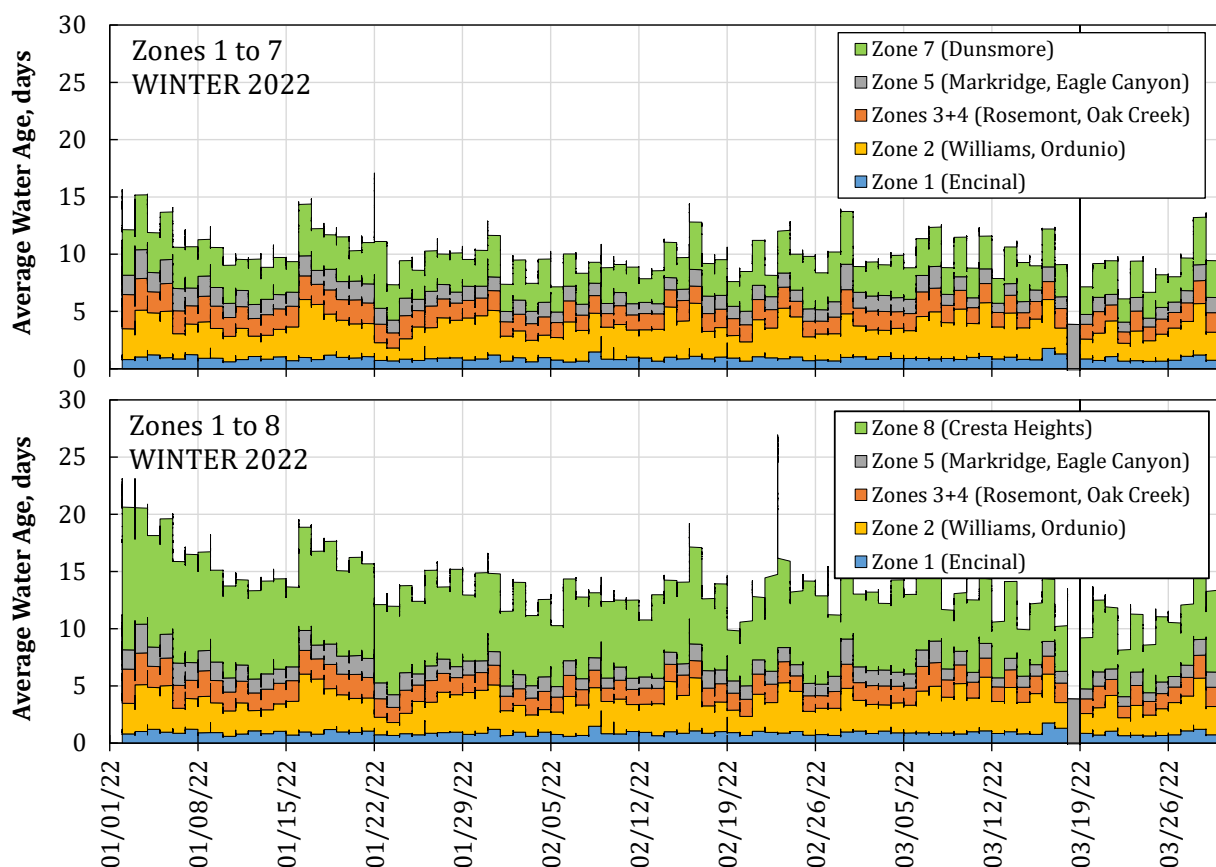


Figure 8 – Estimated Winter 2022 Water Age as the Water Travels from the Sources to Dunsmore Reservoir in Zone 7 (upper chart) or Cresta Heights Reservoir in Zone 8 (lower chart)

Figure 9 shows a similar analysis for Summer 2022. The water age to Zone 7 (upper chart) was less than 10 days for most of the summer, but the age to Zone 8 (lower chart) was between 10 and 15 days most of the time with about 50% of the water residence time spent in Cresta Heights reservoirs.

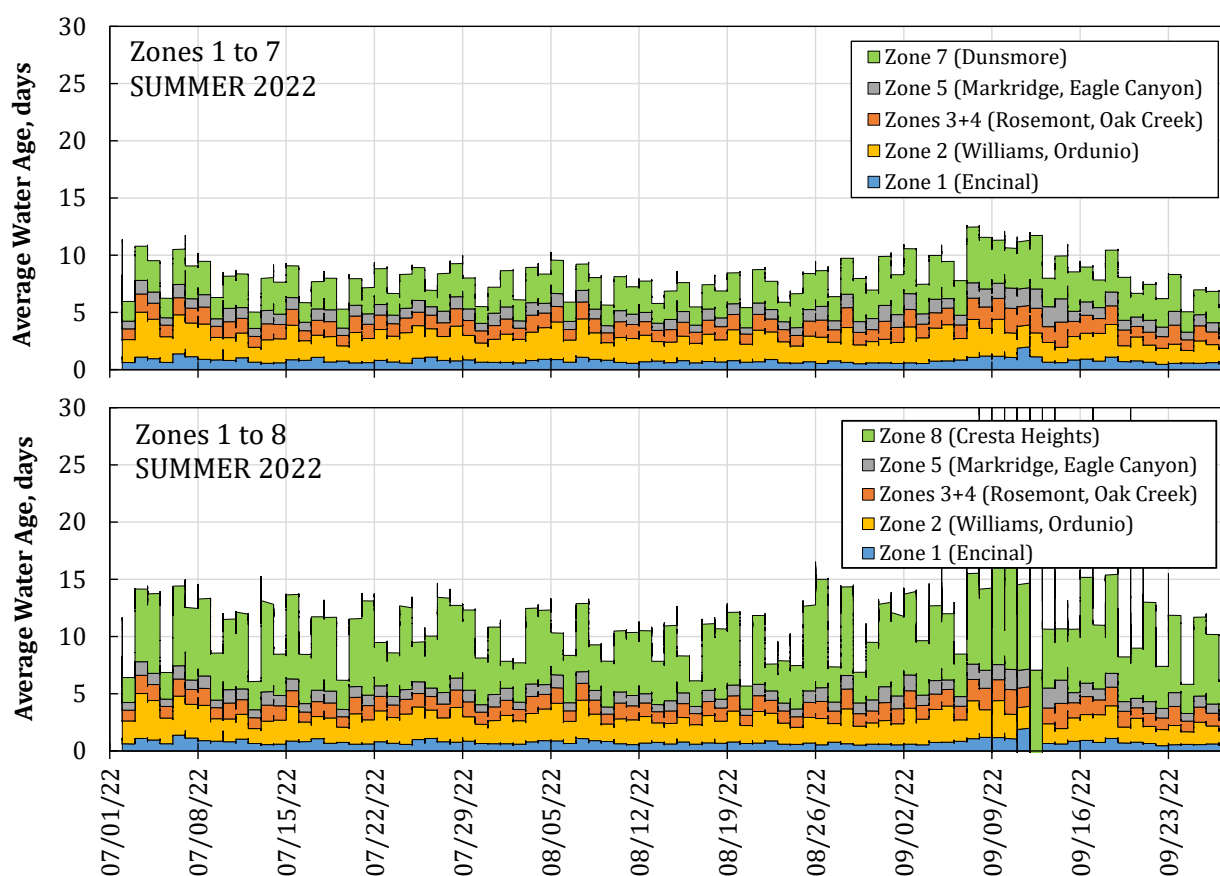


Figure 9 – Estimated Summer 2022 Water Age as the Water Travels from the Sources to Dunsmore Reservoir in Zone 7 (upper chart) or Cresta Heights Reservoir in Zone 8 (lower chart)

Figures 10 and 11 present the breakdown of the water age from sources to Zone 10 in Winter 2022 and Summer 2022, respectively. Similar to the breakdown profiles shown in Figures 8 and 9, almost half the age of the water consumed in Zone 10 was spent in Shields reservoir. This observation suggests that the majority of chloramine residual loss in the system is likely to take place in the terminal reservoirs Dunsmore, Cresta Heights, and Shields. Thus, any future consideration for boosting chloramine residual can be focused on these reservoirs or the flow from the zone feeding them, but not any of the other lower zones.

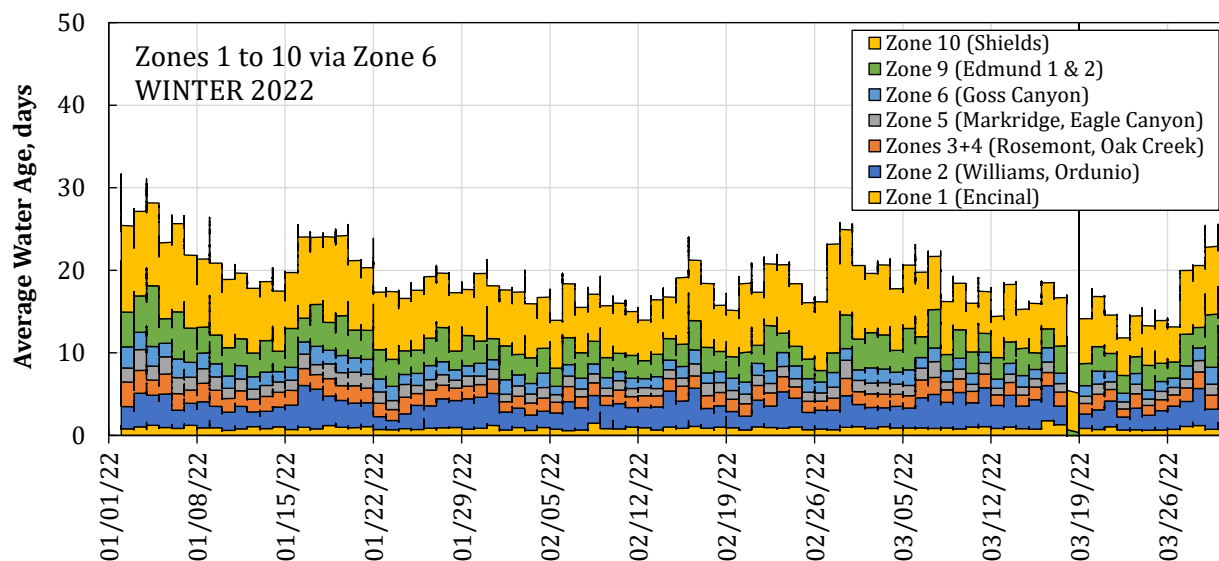


Figure 10 - Estimated Average Water Age in Winter 2022 as the Water Travels from Sources to Zone 10 via Zone 6

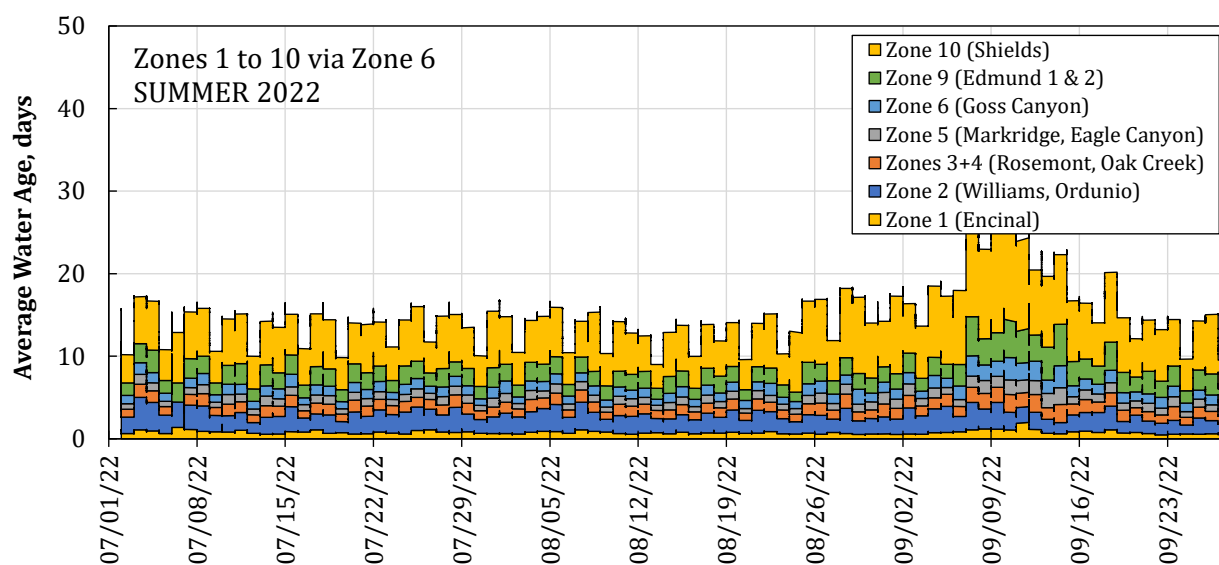


Figure 11 - Estimated Average Water Age in Summer 2022 as the Water Travels from Sources to Zone 10 via Zone 6

3.2 Chlorine Decay

A longer water age results in further decay of the chlorine residual. An analysis was also conducted on the chlorine residual data collected by the District to further characterize the impact of system operation and water age on the loss of chlorine residual as the water moves up through the various hydraulic zones. Figure 12 presents the chlorine residual profiles in Zones 5, 8, and 10 during 2022. The profiles show that the District maintains a sufficient chlorine residual through the system, but as expected, the terminal zones can experience significant chlorine residual loss, especially in the

summer months when the water temperature increases. This is clearly demonstrated in Zone 10 when the chlorine residual was less than 0.5 mg/L for most of the summer of 2022.

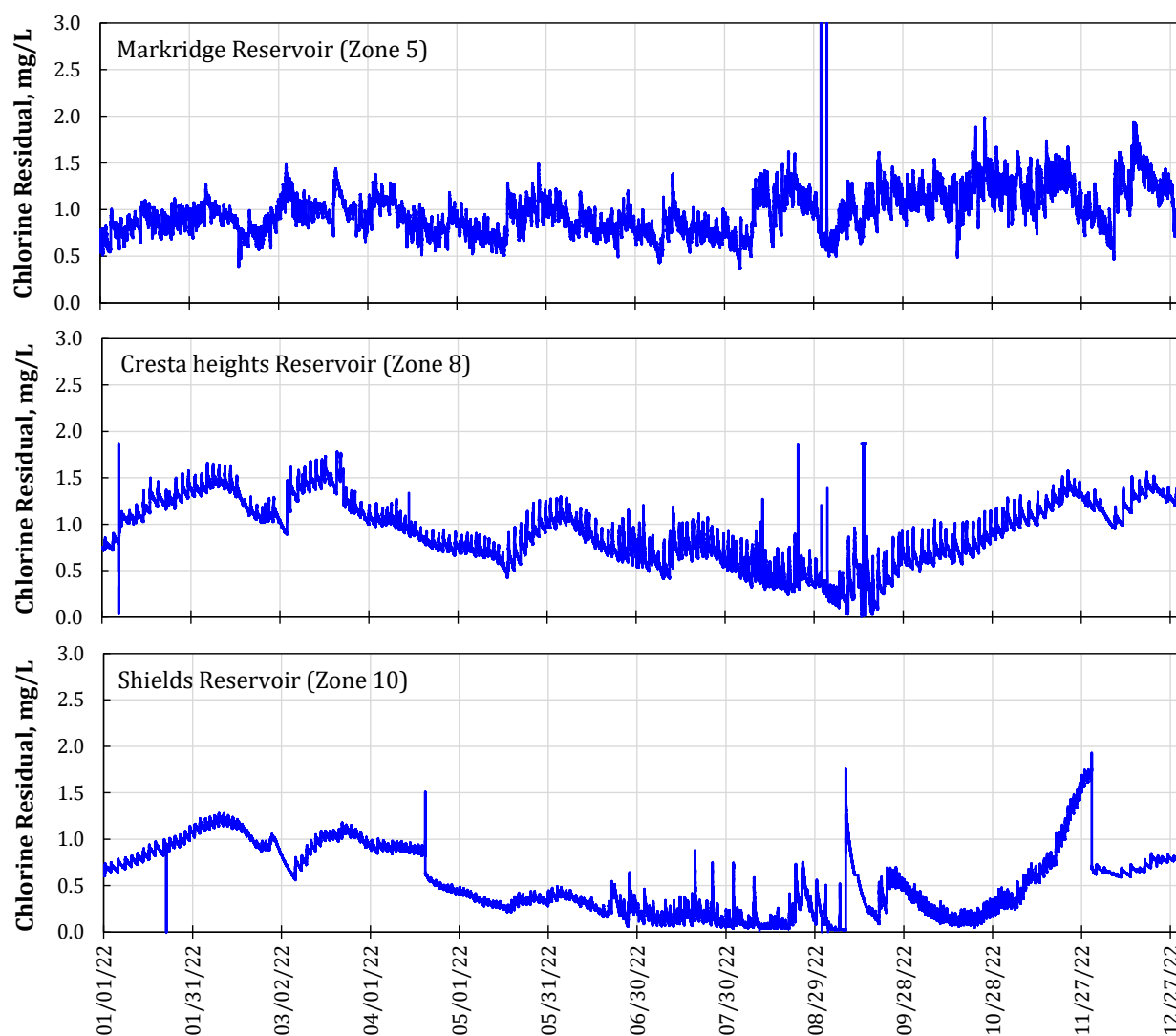


Figure 12 - Chlorine Residual Profiles in Zones 5, 8, and 10 throughout 2022

The analysis of the chlorine residual data reinforce the conclusion of the water age analysis that the terminal zones, especially Zone 10 (Shields), are most susceptible to chlorine residual loss, which may result in increased biological growth, especially during the summer months.

3.3 Reservoir Cleaning

The District's 17 water storage reservoirs are scattered throughout all hydraulic zones. The inspection, rehabilitation, and/or cleaning record of the reservoirs is summarized in Table 2. District's records indicate that all reservoirs were inspected in the last three years with the exception of one of the Goss Canyon Reservoirs which was last inspected in 2015. The last column in Table 2

identifies the number of years since the last cleaning or rehabilitation work done on each reservoir. The data show that eight highlighted reservoirs have not been cleaned or rehabilitated for 15 to 25 years. This does not necessarily mean that the reservoirs require cleaning since all of them have been inspected in the last three years. Nonetheless, it is advisable that these reservoirs be scheduled for cleaning in order to reduce the potential for biofilm growth in the sediment or on the walls of the reservoirs.

Table 2 – Reservoir Inspection and Cleaning Conducted since 1998

Reservoir	Zone	Capacity, MG	Last Inspection	Last Cleaned or Rehabilitated	Years since Last Cleaning or Rehabilitation
Encinal	1	3.0	2020	NA	--
Oceanview (Williams)	2	3.6	2022	2022	1
Ordunio	2	2.75	2022	2022	1
Rosemont	3	0.5	2021	2021	2
Oak Creek #1	4	1.6	2020	2018	5
Oak Creek #2	4	1.6	2020	2019	4
Eagle Canyon	5	1.5	2020	2001	22
Markridge	5	0.5	2020	2020	3
Goss Canyon #1	6	0.46	2015	2023	0
Goss Canyon #2	6	0.44	2015	1999	24
Dunsmore	7	0.42	2022	2022	1
Cresta Heights #1	8	0.5	2021	1999	24
Cresta Heights #2	8	0.5	2021	1999	24
Edmund #1	9	0.5	2021	2008	15
Edmund #2	9	0.5	2020	1998	25
Shields	10	0.6	2023	1998	25
Pickens	11	0.5	2023	2001	2

4.0 POTENTIAL FOR RED WATER OCCURRENCE & METALS RELEASE

As discussed earlier, red water discoloration may occur if a high concentration of iron is mobilized from the corrosion scales on unlined iron pipes into the bulk water. The extent of iron mobilization will depend on how much the protective iron-oxide layer over the corrosion scale will weaken and release the underlying iron into the water. The strength of the oxide layer is primarily determined by two factors: The strength of the water's oxidation potential, which results in a strong(er) protective layer, and the chemical precipitation potential of the water, primarily that of calcium carbonate, CaCO_3 , which helps cement the oxide layer and strengthen it. Since the source water entering the system is not changing with this action, the precipitation of CaCO_3 will not change. However, the change from free chlorine to chloramine will lower the oxidation potential of the water,

and thus has the potential to weaken the protective oxide layer. Unfortunately, it is impossible to determine if the reduction in the oxidation strength of the water will sufficiently weaken the oxide later and release enough iron to result in discolored water.

Two types of analyses are conducted in this section. The first is an analysis of the distribution system water quality data to assess its potential to precipitate CaCO_3 . The second is an analysis of the prevalence of unlined iron pipes in the distribution system and galvanized steel service lines between the mains and customer meters and properties.

4.1 Water Quality

CVWD collects quarterly water quality samples from the 11 hydraulic zones in the system and analyzes them for a range of constituents. The data collected over the five-year period of 2017 to 2021 were consolidated and analyzed. The data were then used to calculate the Langelier Saturation Index (LSI) and the calcium carbonate precipitation potential (CCPP). The water quality data and the calculated LSI and CCPP values are summarized in Table 3. For each parameter, the 5-year average value is listed as well as the 10th and 90th percentiles of the 220 values measured in the 11 zones.

Table 3 – Summary of Distribution System Water Quality Measured Quarterly (2017 – 2021)

Parameter	Unit	Average	10 th Percentile	90 th Percentile
Field pH	--	7.7	7.4	8.0
Alkalinity	mg/L as CaCO_3	121	91	140
Calcium	mg/L	60	43	73
Field Temperature	°C	21	15.6	27
Conductivity	$\mu\text{S}/\text{cm}$	754	491	927
LSI	--	0.07	-0.16	+0.31
CCPP	mg/L CaCO_3	1.1	-5.28	+6.35

The data show that the water is well buffered with an average alkalinity of 121 mg/L as CaCO_3 , and contains a significant concentration of calcium with an average of 60 mg/L. The field pH measured averaged only 7.7 with a 90th percentile not exceeding 8.0. This is a slightly lower pH than desired because it results in LSI and CCPP values that are close to zero which suggest that the water neither precipitates nor dissolves CaCO_3 . Figure 13 shows a plot of the quarterly average and range of LSI (left) and CCPP (right) across the 11 zones. While the values fluctuated between positive and negative, it was mostly slightly positive which is desirable.

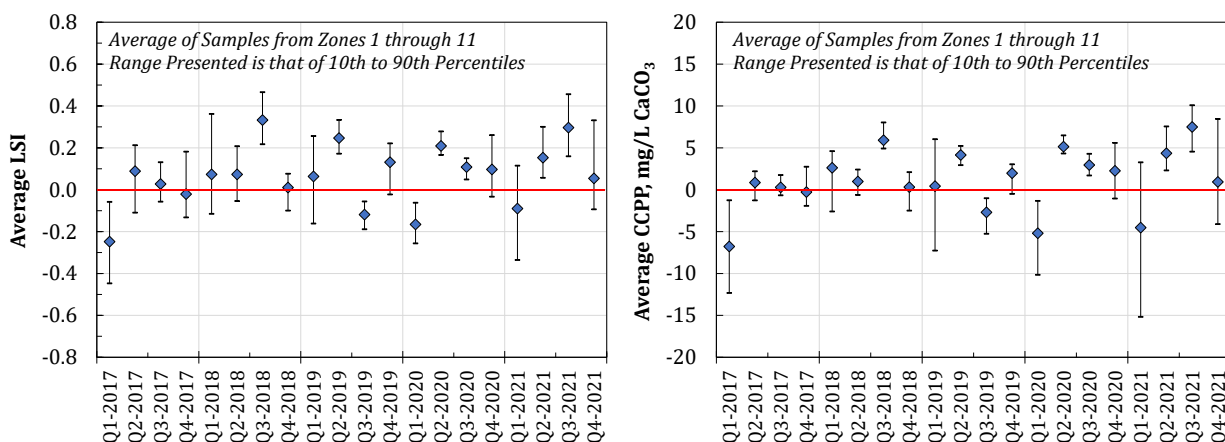


Figure 13 – Average and Range of Quarterly LSI (left) and CCPP (right) Values Measured

In summary, the water quality analysis suggests that the District's water has only a slight tendency to precipitate CaCO_3 as it travels through the distribution system, and thus it is likely to have a minor contribution to the strength of the iron corrosion protective layer when present.

4.2 Pipe Material

Like many other distribution systems, CVWD's distribution system contains pipes of different sizes and materials. Pipe material may include plastic, asbestos cement, cement-coated steel, and uncoated steel. From the mains, service laterals (SLs) deliver water to each customer meter, and then another SL delivers water from the meter to the property. These SLs can also be made from various materials including plastic, copper, galvanized steel, and lead. Finally, internal plumbing and fixtures in a customer's home can be made from plastic, copper, galvanized steel, and brass (which contains lead and copper).

As discussed earlier, all metal pipes corrode when exposed to water, and form a corrosion scale above the bare metal surface that protects the metal from further corrosion. With the conversion from free chlorine to chloramine, there is the potential for the protective scale to weaken and allow the release of a significant mass of metal into the water. The three types of metals exposed to the water are iron (distribution system mains and galvanized plumbing), copper (copper plumbing and brass fixtures), and lead (lead SLs, lead-containing solder, and brass).

4.2.1 Iron Pipes

Figure 14 shows a map of the distribution system pipes with the red lines being unlined iron pipes. The map shows that unlined pipes are present throughout all the system zones from the plants to the upper reservoirs. It is WQTS' understanding that the District is implementing a program to replace the unlined iron pipes in the system with cement-lined pipes, but this will take several years to complete.

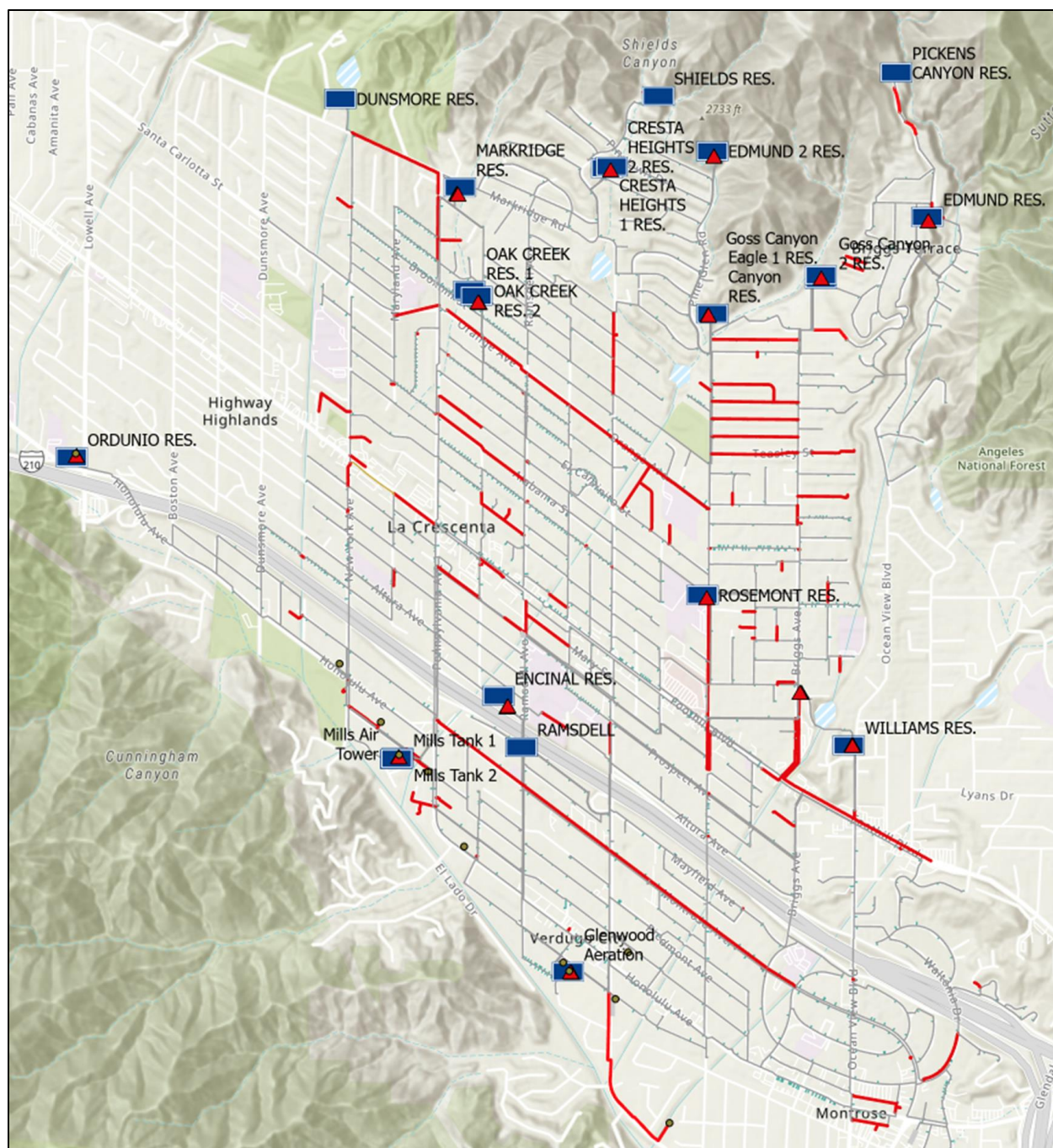


Figure 14 – Unlined Iron Pipes (Red) in the District’s Distribution System

Figure 15 includes two photographs of the degree of tuberculation inside a 4-inch unlined iron pipe removed from the distribution system at the corner of Cecilville Avenue and Orange Avenue. In the photograph to the left, the upper protective layer and the underlying soft iron layer (reddish) are marked as 1 and 2, respectively, for illustration purposes. If this degree of tuberculation is in all the distribution system unlined iron pipes, it increases the risk of red-water occurrence.



Figure 15 – Internal Corrosion of an Unlined Iron Pipe Removed from the Corner of Cecilville Avenue and Orange Avenue

WQTS also analyzed the SL inventory provided by the District. Table 4 presents a listing of the number of addresses with galvanized iron SLs on the customer side of the meter, District side of the meter, or both. At this time, the District has 1,820 addresses with at least one galvanized iron SL. The inside condition of these SLs is unknown. However, they are likely to be as tuberculated as the unlined iron mains in the system. This would also make them possible contributors to a red-water challenge in customers' tap water.

Table 4 – Number of Steel Service Lines (SLs) in Each Hydraulic Zone

Zone	No. of Addresses with Only Customer Steel SL	No. of Addresses with Only CVWD Steel SL	No. of Addresses with Both Steel SLs	No of Addresses with at least one Steel SL
1	116	38	20	174
2	114	57	18	189
3	72	26	24	122
4	69	259	66	394
5	50	126	25	201
6	79	224	50	353
7	12	24	2	38
8	34	48	15	97
9	44	84	19	147
10	21	2	1	24
11	16	48	17	81
Total	627	936	257	1,820

4.2.2 Lead and Copper

Lead and copper levels in tap water are monitored per the requirements of the Lead and Copper Rule (LCR). They are used as indicators of lead and copper release from service laterals and in-home plumbing material. Figures 16 and 17 present the LCR monitoring results for lead and copper, respectively, from 2011 through 2023. Since 2014, the District has been on a tri-annual LCR monitoring schedule. When monitoring is conducted, the District solicits the participation of at least 30 homeowners. Each homeowner collects a first-flush water sample from a drinking tap in the home (typically, a kitchen faucet), and provides it to the District for analysis for both lead and copper. The results for each are then ranked, and the 90th percentile is compared to the regulatory action levels of 15 µg/L for lead and 1.3 mg/L for copper.

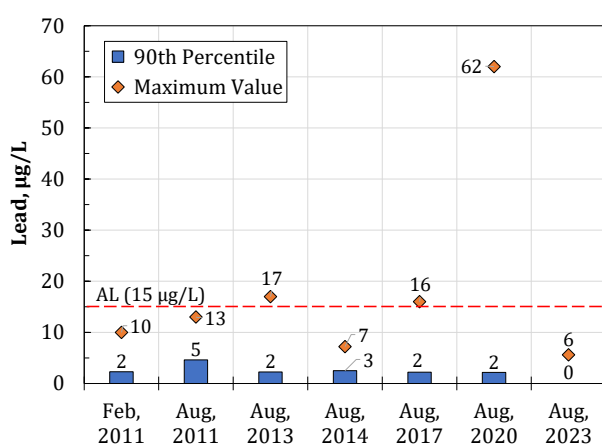


Figure 16 – Lead Levels Measured under the LCR Monitoring Program (2011 through 2023)

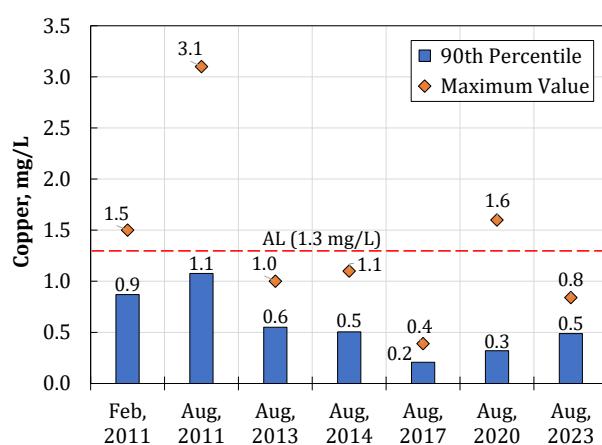


Figure 17 – Copper Levels Measured under the LCR Monitoring Program (2011 through 2023)

The results presented in Figures 16 and 17 show that the 90th percentile lead and copper levels in each of the seven monitoring events since 2011 have been below their respective action levels. Once the system is converted to chloramine, DDW will require the District to conduct LCR monitoring for two consecutive 6-month periods and will require the monitoring to be conducted at a minimum of 60 homes. The monitoring results will then be compared to those presented in Figures 16 and 17 to determine if the conversion from free chlorine to chloramine in the distribution system resulted in a significant rise in the lead and copper levels in the District's tap water.

5.0 SUMMARY & RECOMMENDATIONS

The District's plans to convert the distribution system from free chlorine to chloramine were set in motion a few years ago, but the conversion has not yet taken place. The analysis conducted herein focused on two primary areas of concern: The first was the potential loss of chloramine residual and onset of biological nitrification, while the second was the potential increase in metals release from the distribution system piping and in-home plumbing material as the disinfectant is changed from free chlorine to chloramine.

All systems that utilize chloramine in the distribution system experience episodes of nitrification, which are prompted by the loss of chloramine residual to levels that allow the proliferation of nitrifying bacteria in the system, especially in storage reservoirs. These occurrences are commonly mitigated by implementing measures to maintain a reasonably high chloramine residual in the water throughout the system to minimize bacterial growth. This includes reservoir cleaning and managing the storage volume to minimize water age. Depending on the District's experience during the first two or three years, it may be determined that one or two chloramine boosting systems are required to maintain the necessary chloramine residual in the District's distribution system reservoirs.

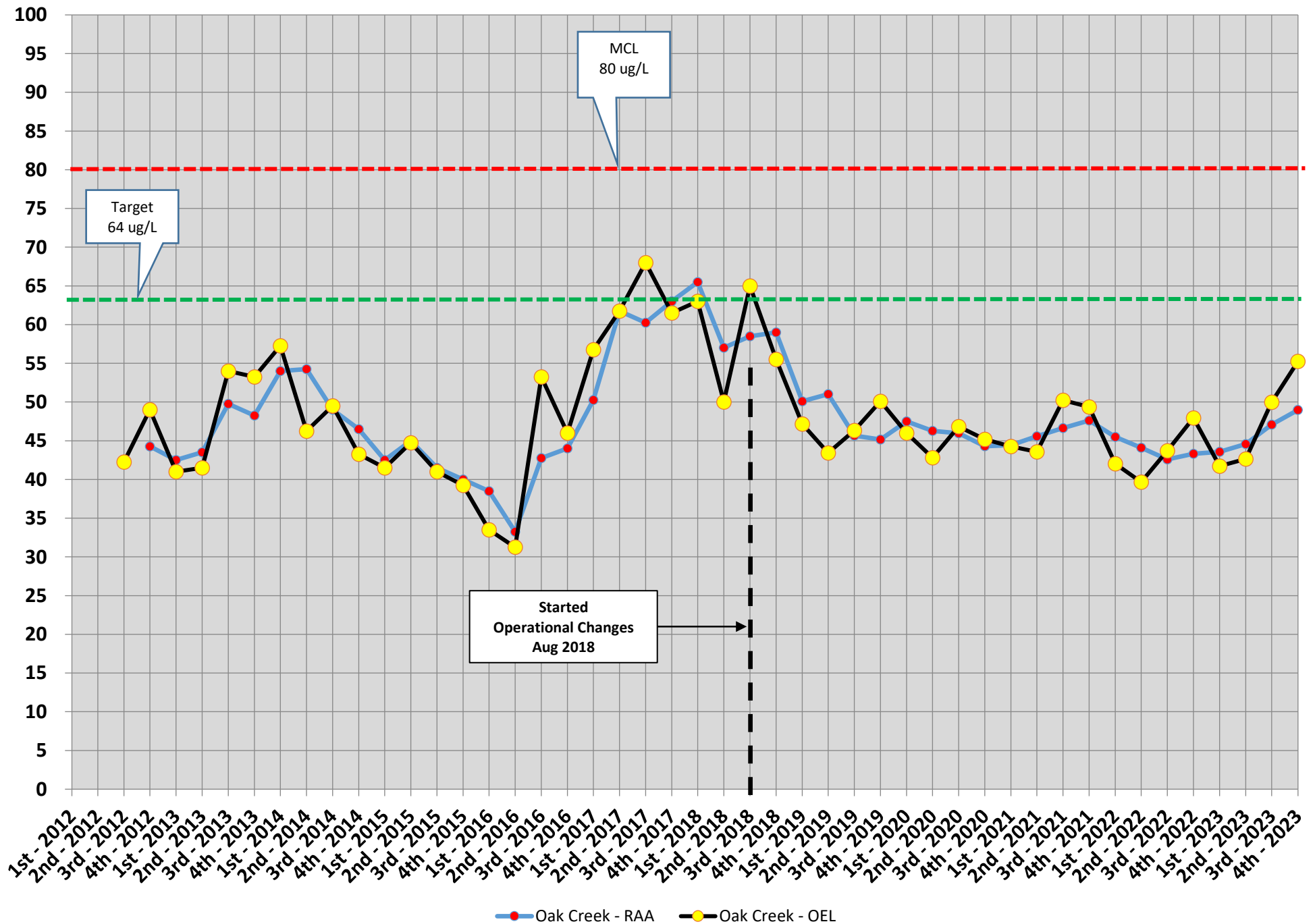
The analysis conducted showed that there is a significant number of unlined iron pipes in the distribution system, and that about 1,800 customers have galvanized iron service laterals. Aside from the change in disinfectant, there will be no change in the chemistry of the water to which the pipes are exposed. Hence, it is unlikely that the District will experience any metals release challenges in the system. However, the possibility does exist that a change in the disinfectant from a strong oxidant (free chlorine) to a weaker oxidant (chloramine) may allow for the release of sufficient iron from the unlined iron pipes in the system, and from galvanized service lines, that would appear as discolored water at residential taps. Aside from the objectionable look of it, discolored water caused by elevated iron concentrations can cause staining of laundry and home appliances.

Based on the analysis presented herein, the District may consider one of two alternative paths: The first is to proceed with the conversion to chloramine with the recognition that a slight risk of temporary red-water occurrence may take place in the system, but the risk is too low to warrant additional investigations. Alternatively, the District may decide that the risk, while low, is of sufficient concern that additional investigations into the potential for red-water occurrence should be conducted before chloramine conversion takes place.

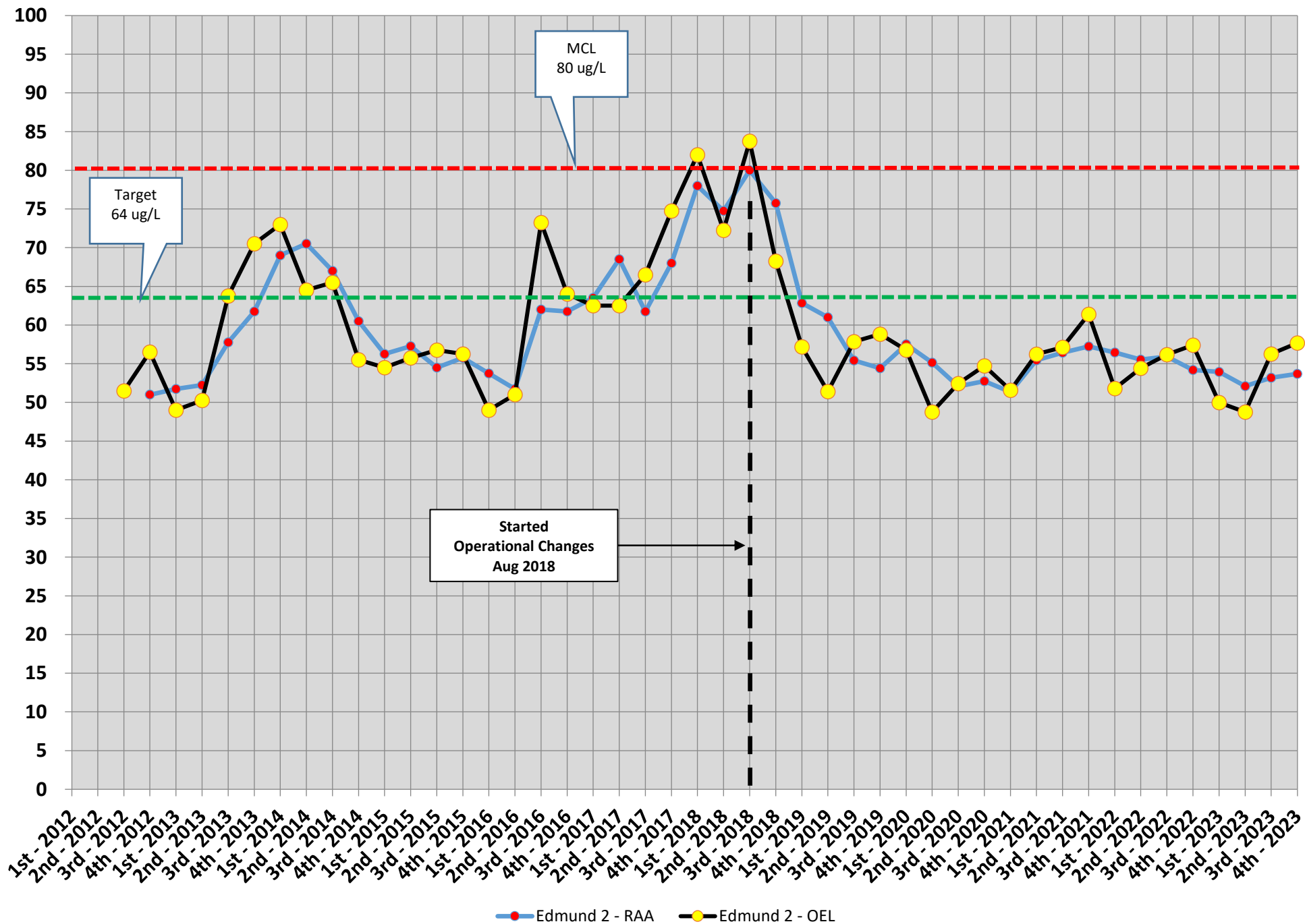
If the District chooses the first alternative, WQTS will continue to work with operations staff to finalize system preparedness and begin the conversion to chloramine. If the District chooses the second alternative, then the implementation of chloramine conversion will need to be delayed for about a year during which pilot-scale testing of the impact of chloramine conversion on metals release from District pipes. This will require harvesting several galvanized pipes from the system (possibly service laterals or in-home plumbing) and setting up a pipe testing unit with some pipes receiving chlorinated District water and other pipes receiving chloraminated District water. This testing program can also address the question of whether chloramine conversion will have an effect on lead and copper levels in tap water. This is a significant and lengthy testing program that may cost the District between \$500,000 and \$800,000.

	Pressure Zone	Influent	1	2	2	3	4	4	4		5	5	6	6		7	8	8		9	9		10	11
ID No.	Month & Year	Paschall	Encinal	Ocean View	Ordunio	Rosemont	4715 Ramsdell	Oak Creek #1	Oak Creek #2	Oak Creek	Markridge	Eagle Canyon	Goss Canyon #1	Goss Canyon #2	3250 Brookhill	Dunsmore	Cresta Heights #1	Cresta Heights #2	5603 Pineglen	ED2	ED1	2752 Pinelawn	Shields	Pickens
	Source Out	Rosemont - Zone 3 & Oak Creek - Zone 4	Ocean View, Ordunio	Paschall, Rosemont - Zone 3 & Oak Creek - Zone 4	Paschall, Rosemont - Zone 3 & Oak Creek - Zone 4	Eagle Canyon Zone 5		Markridge & Eagle Canyon - Zone 5	Markridge & Eagle Canyon - Zone 5		Goss Canyon - Zone 6 Dunsmore - Zone 7 Cresta Hts - Zone 8	Goss Canyon - Zone 6	ED #1 & #2 - Zone 9	ED #1 & #2 - Zone 9		Terminal Reservoir	ED #1 & #2 - Zone 9	ED #1 & #2 - Zone 9		Shields - Zone 10	Pickens - Zone 11		Terminal Reservoir	Terminal Reservoir
324	3/6/2023	24.7	15.2	17.9	29.8	32.6	19.8	31.5	30.9	31.5	28.2	38.7	out of service	38.6	38.5	43.0	45.2	47.7	50.1	37.4	43.3	36.0	33.2	18.5
325	3/13/2023	27.1							37.0	37.0			out of service	45.9	41.2		52.2		54.9		46.6			
326	3/20/2023	20.7							28.3	28.3			out of service	48.3	55.4		53.8		58.2		50.0			
327	3/27/2023	16.7							32.6	32.6			out of service	39.9	44.5		49.6		52.2		43.1			
328	4/4/2023	17.2	17.9	18.6	29.8	37.3	29.7	35.2	32.7	32.7	34.5	39.1	out of service	42.3	55.7	45.9	48.0	52.4	56.3	41.3	44.0	38.1	38.6	19.3
329	4/10/2023	18.7							44.1	44.1			out of service	49.5	49.9		54.6		60.4		49.5			
330	4/17/2023	18.5							54.1	54.1			out of service	64.1	66.5		70.3		66.7		66.8			
331	4/24/2023	17.3							52.6	52.6			out of service	59.1	63.9		65.3		70.1		59.5			
332	5/5/2023	19.1	20.8	33.4	39.6	42.1	28.3	52.7	46.9	46.9	50.9	58.2	out of service	55.7	53.4	63.5	75.8	66.4	76.3	56.6	70.4	54.8	51.3	32.0
333	5/8/2023	14.5							47.8	47.8			out of service	65.5	58.8		65.4		69.6		60.0			
334	5/15/2023	18.6							48.4	48.4			out of service	38.3	57.0		56.9		80.6		62.9			
335	5/23/2023	18.2							48.6	48.6			out of service	55.7	48.0		65.2		65.8		53.0			
336	5/30/2023	16.9							41.5	41.5			out of service	59.4	44.5		63.4		75.6		55.5			
337	6/6/2023	18.6	20.2	26.5	33.1	38.5	25.0	43.9	42.1	43.9	39.2	52.1	out of service	51.3	43.3	42.7	58.8	59.2	64.8	50.8	56.3	45.5	43.8	278.3
338	6/12/2023	17.0							44.5	44.5			out of service	49.9	46.2		61.4		59.2		57.3			
339	6/19/2023	22.0							48.1	48.1			out of service	59.3	47.4		65.3		79.1		59.3			
340	6/26/2023	24.0							48.2	48.2			out of service	55.7	52.1		69.0		75.4		67.0			
341	7/5/2023	23.7	40.5	41.7	54.3	47.4	36.1	59.2	26.6	59.2	50.8	68.0	out of service	58.2	62.0	60.4	74.2	74.7	79.5	64.7	68.8	66.5	61.2	48.9
342	7/10/2023	26.9							53.0	53.0			out of service	59.2	57.5		71.6		75.7		71.1			
343	7/19/2023	24.5							55.3	55.3			57.4		56.6		62.0		51.6		61.4			
344	7/24/2023	25.9							59.3	59.3			59.1		65.4		71.4		85.3		76.4			
345	7/31/2023	23.7							59.0	59.0			54.3		57.2		67.5		74.5		69.0			
346	8/8/2023	18.6	43.9	42.0	57.4	51.5	25.5	55.9	50.1	55.9	56.4	66.5	62.0	59.0	61.7	59.7	68.6	69.6	62.4	64.7	73.8	54.6	54.1	59.4
347	8/14/2023	22.6							71.7	71.7			82.3		61.7		81.7		75.5		84.3			
348	8/21/2023	31.8							55.5	55.5			75.9		65.7		70.8		75.9		70.6			
349	8/28/2023	27.8							57.4	57.4			68.5		62.9		80.1		71.5		84.1			
350	9/6/2023	21.5	40.6	60.0	68.4	61.6	24.5		61.4	61.4	60.3	75.4	72.5	76.2	66.9		84.0	83.8	93.5	72.2	89.3	59.0		64.0
351	9/11/2023	20.6						69.9	45.0	69.9			82.4		64.1	51.9	82.5		64.6		83.6		67.0	
352	9/18/20023	24.9							67.9	67.9			87.1		65.3		84.9		91.2		83.2			
353	9/25/2023	23.1							59.9	59.9			73.7		45.5		65.4		67.8		64.3			
354	10/3/2023	22.4	32.5	33.9	59.7	47.7	32.4	57.7	57.7	57.7	56.6	73.6	75.4	79.1	53.2	53.9	73.2	68.7	81.5	57.0	63.1	52.2	48.8	38.7
355	10/9/2023	17.8							56.1	56.1			65.8		44.7		58.0		61.7		63.3			
356	10/16/2023	17.9							51.5	51.5			66.2		55.1		62.4		70.9		67.0			
357	10/24/2023	19.9							64.0	64.0			75.3		59.0		71.1		67.7		79.1			

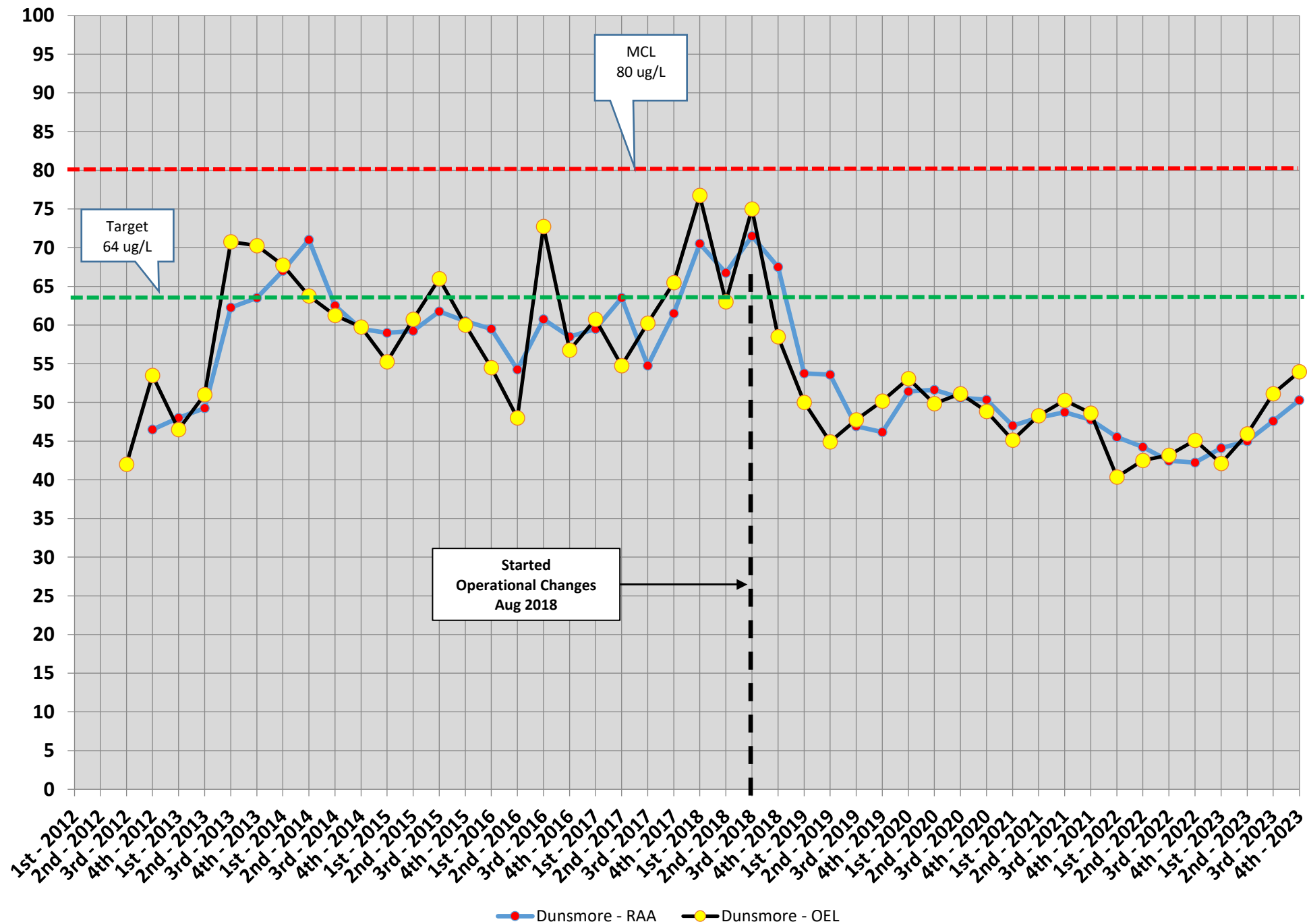
Oak Creek - Quarterly TTHM - Running Annual Average 2012 - 2023



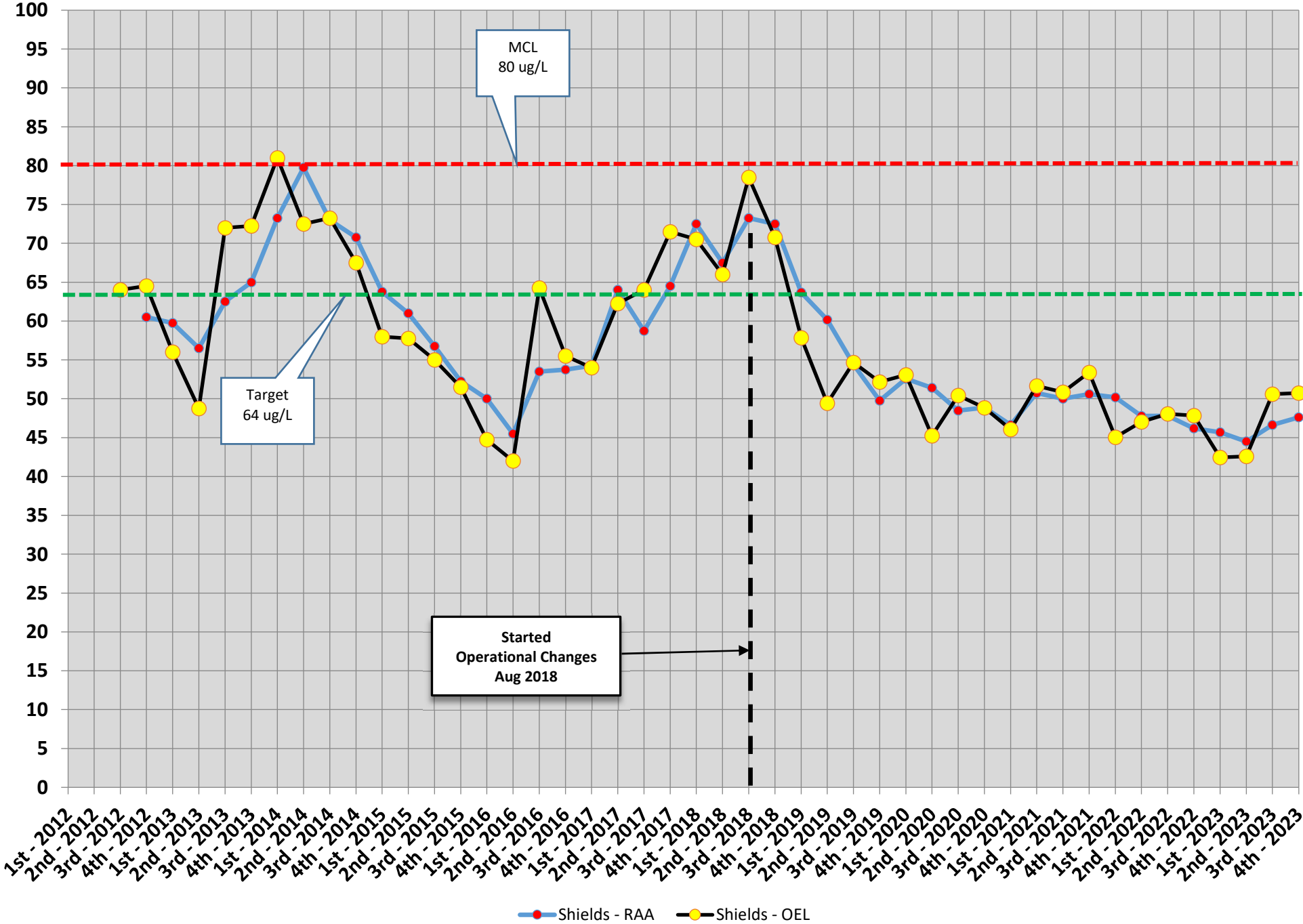
Edmund II - Quarterly TTHM - Running Annual Average 2012 - 2023



Dunsmore - Quarterly TTHM - Running Annual Average 2012 - 2023



Shields - Quarterly TTHM - Running Annual Average 2012 - 2023



NITRIFICATION PREVENTION, MONITORING, & CONTROL PLAN

PREPARED FOR:

CRESCENTA VALLEY WATER DISTRICT
2700 FOOTHILL BLVD.
LA CRESCENTA, CALIFORNIA 91214



PREPARED BY:

WATER QUALITY & TREATMENT SOLUTIONS, INC.
LOS ANGELES, CALIFORNIA

www.WQTS.com



FEBRUARY 25, 2019

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SECTION 1.0 – INTRODUCTION

The Crescenta Valley Water District (CVWD) provides drinking water services to a population of approximately 32,000 in the unincorporated communities of La Crescenta, Montrose, and Verdugo City, California, as well as a small portion of the City of La Canãda-Flintridge. CVWD's service area lies along the corridor between the Verdugo mountains to the southwest and the Angeles National Forest to the northeast. Neighboring water agencies include the City of Glendale to the southwest and the Foothill Municipal Water District (FMWD), a wholesale agency providing water to several retail water agencies in La Canãda-Flintridge and Altadena.

The District serves a blend of local groundwater and imported treated surface water from the Metropolitan Water District of Southern California (MWDSC) via FMWD. While the imported surface water contains chloramine, the District has always converted the chloramine in the imported water to free chlorine and maintained free chlorine in the distribution system. This is achieved by adding a sufficiently high chlorine dose to the groundwater being blended with the treated MWDSC water such that full breakpoint chlorination of the chloramine present in the MWDSC water is achieved resulting in a blended water containing only free chlorine. However, driven by a steady rise in the levels of disinfection by-products (DBPs) in its drinking water, the District made the decision to convert the distribution system from free chlorine to chloramine. To implement this decision, the District will add chlorine and ammonia to the groundwater to form chloramine before it blends it with the chloraminated MWDSC water.

With the conversion from free chlorine to chloramine, the District is likely to experience biological nitrification in its storage tanks and in the system. The concern over nitrification in storage tanks is that it is accompanied by loss of chloramine residual, which in turn increases the likelihood for additional biological growth in the system. If left unchecked, this can result in the proliferation of total coliform bacterial, and even *E. Coli*. For this reason, it is important that biological nitrification be monitored and controlled.

This document is a comprehensive guide for District staff to understand, monitor, prevent, and control biological nitrification in the District's distribution system in general, and storage tanks in particular.

SECTION 2.0 – SYSTEM DESCRIPTION

Figure 1 shows a map of the CVWD service area. Shown on Figure 1 are also the locations of the water storage reservoirs in the service area and their names.

CVWD receives water from two primary sources:

- Imported treated water from MWDSC received through via FMWD
- Local Groundwater

The imported water is treated at MWDSC's Weymouth filtration plant, which receives a blend of Colorado River Water (CRW) and State Water Project (SWP) water. MWDSC applies chloramine to its treated water before it is transmitted to its member agencies, including FMWD. Therefore, the treated MWDSC water received by CVWD also contains chloramine as the disinfectant.

The local groundwater is extracted through wells located in the Verdugo Basin. Because most of the local groundwater contains elevated nitrate levels, treatment is implemented to most wells. Some wells are treated at the Glenwood Ion-Exchange (IX) treatment plant, while the others are treated through blending with MWDSC's water before the blend is served to the District's customers.

Due to the local topography, the District's water system is divided into 11 hydraulic pressure zones, with each zone containing at least one storage tank. Figure 2 shows a schematic of the District's 11 zones. Figure 2 also shows the various tanks in each zone, how the two water supplies are blended in the system, and how the water is moved from one zone to another. The wells treated at the Glenwood WTP and the Mills Plant are not shown for clarity.

Figure 2 clearly shows how the water moves through the District's system, which also provides insight into the potential hot-spots for nitrification. The District's water sources enter the system in zones 1, 2, and 4. Groundwater enters in Zones 1 and 4, while the imported surface water enter in Zone 2. Water then is pumped progressively to the higher elevation zones 4 through 11. This means that a drop of water consumed in Zone 10 or 11 will have had to travel through all the other zones and their storage tanks before making it to either zone, which will result in the lowest chlorine residual dominating the storage tanks in the upper zones. This also suggests that nitrification is most likely to occur in these upper zones well before it occurs in the storage tanks in zones 1 through 3.

Finally, Table 1 lists the specifics of the District's distribution system tanks including each tank's total capacity, volume per ft of depth, and the pressure zone in which it is located.

SECTION 2 – SYSTEM DESCRIPTION

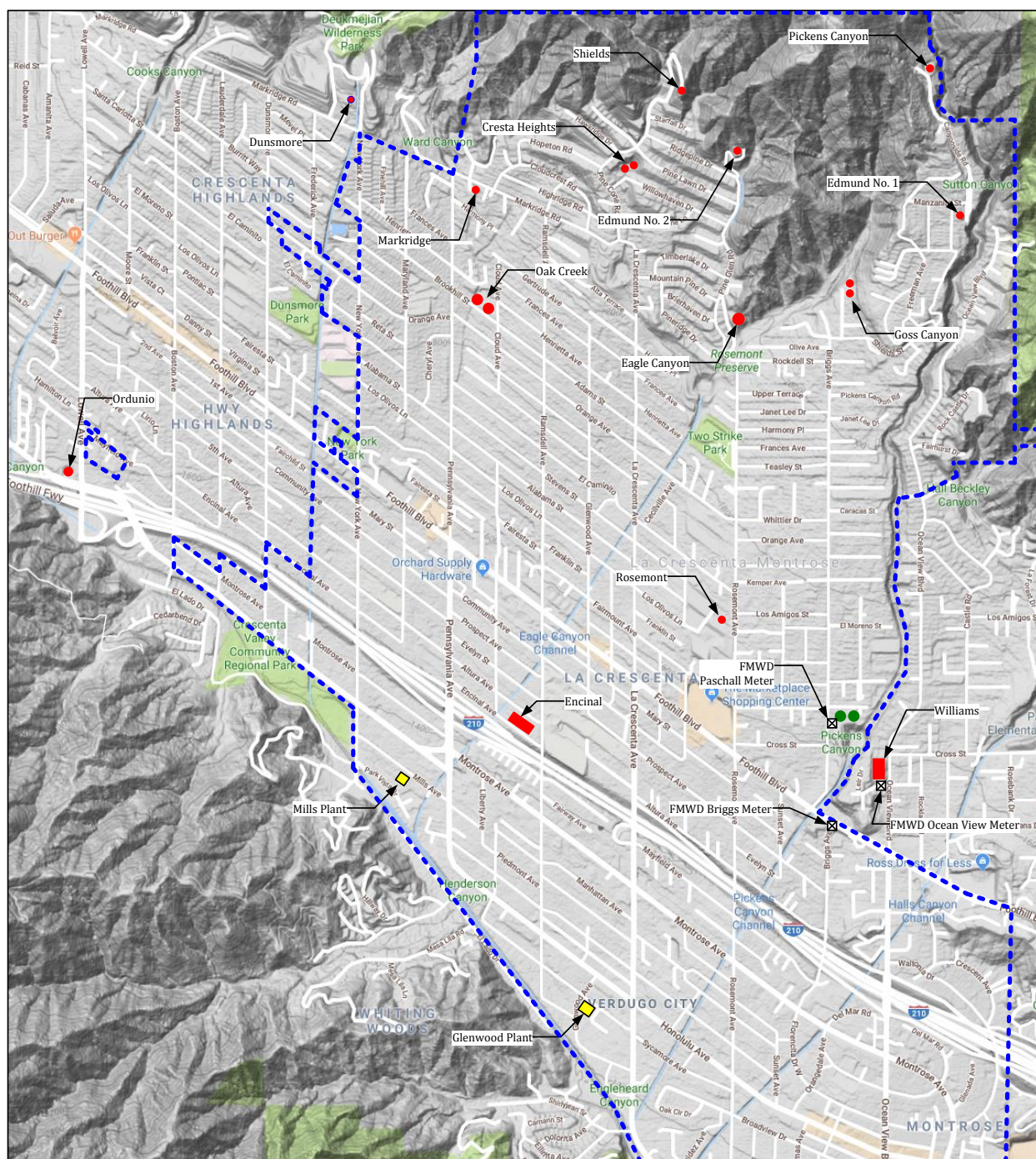


Figure 1 – Boundaries of the Crescenta Valley Water District and the Locations of its Storage Tanks/Reservoirs, FMWD Connections, and Treatment Plants

SECTION 2 – SYSTEM DESCRIPTION

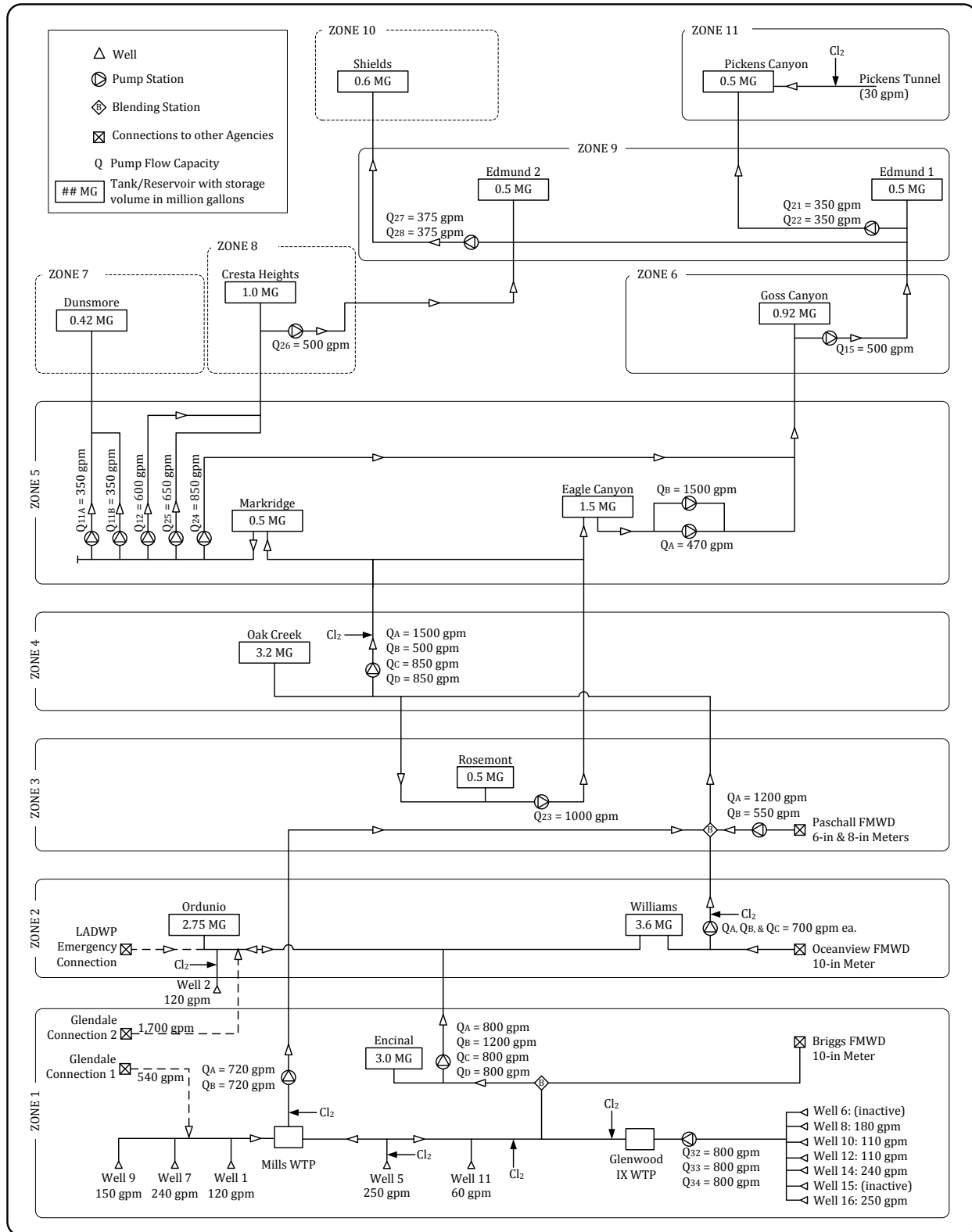


Figure 2 – Schematic of the District's Hydraulic Zones and Water System Components

Table 1 – CVWD Storage Facilities

Tank	Volume (MG)	Unit Volume, gal/ft	Pressure Zone
Encinal	3.0	131,589	1
Williams	3.6	139,128	2
Ordunio	2.75	88,880	2
Rosemont	0.5	24,821	3
Oak Creek 1	1.6	71,085	4
Oak Creek 2	1.6	71,085	4
Markridge	0.5	47,586	5
Eagle Canyon	1.5	24,821	5
Goss Canyon 1	0.42	17,131	6
Goss Canyon 2	0.5	21,149	6
Dunsmore	0.42	17,131	7
Cresta Heights 1	0.5	21,860	8
Cresta Heights 2	0.5	21,860	8
Edmund 1	0.5	28,786	9
Edmund 2	0.5	21,860	9
Shields	0.6	19,763	10
Pickens Canyon	0.5	17,771	11

SECTION 3.0 – CHLORAMINE CHEMISTRY

This section discusses chloramine formation chemistry, and the decay of chloramine in the distribution system.

CHLORAMINE FORMATION

Chloramine is generated by combining free chlorine, Cl_2 , and ammonia, NH_3 . These two chemicals react rapidly with each other according to the following reaction to form monochloramine, NH_2Cl :



Since the molecular weight of Cl_2 is 70 and the molecular weight of nitrogen, N, is 14, Reaction 1 basically says that every 70 mg of free chlorine reacts with 14 mg of ammonia-nitrogen, $\text{NH}_3\text{-N}$. Recognizing that the ratio of 70:14 is 5:1, Reaction 1 states that chlorine and ammonia-nitrogen react with each other at a 5:1 weight ratio (i.e., mg/mg). Under virtually all applications, chlorine is added to the water first, and ammonia is added at a downstream location. Regardless of the chlorine dose applied, the reaction to form chloramine is based on the chlorine residual concentration immediately at the ammonia addition point. In other words, the target ammonia dose should be based on a measured chlorine residual as close as possible to the ammonia injection point.

Since both free chlorine and chloramine are measured in mg/L as Cl_2 , when chloramine is formed from free chlorine, the weight concentration of the generated chloramine is the same as that of the free chlorine consumed by the reaction when the concentration of both is expressed in mg/L as Cl_2 . Therefore, if a target chloramine residual of 2.5 mg/L as Cl_2 is to be formed, Reaction 1 suggests that the free chlorine concentration in the water immediately upstream of the ammonia addition point should be 2.5 mg/L as Cl_2 and the ammonia feed system should add a dose of 0.5 mg/L $\text{NH}_3\text{-N}$ as N. This translates into a chlorine:ammonia ratio of 5:1. While this appears to be the proper target, WQTS recommends that the ammonia dose be set at a slightly higher value to result in a chlorine:ammonia ratio of 4.5:1 at the point of ammonia addition. Therefore, if the free chlorine concentration in the water is 2.5 mg/L, then the ammonia dose set point should be 0.55 mg/L as N, which is calculated as such:

$$\text{NH}_3\text{-N Dose} = [\text{Cl}_2 \text{ Residual}] \div 4.5 = 2.5 \div 4.5 = 0.55 \text{ mg/L as N} \quad (2)$$

The reason for the recommended ratio of 4.5:1 will be discussed later in this section. For a dose of 0.55 mg/L as N, 0.5 mg/L will react with the 2.5 mg/L chlorine to form 2.5 mg/L chloramine within a period of no more than 30 seconds (assuming excellent mixing of the ammonia solution into the water). This leaves 0.05 mg/L of free ammonia-nitrogen in the water, which will remain in the water as it enters the distribution system. If the ammonia dose were 0.6 mg/L, then the same amount of 0.5 mg/L will react with the free chlorine to form 2.5 mg/L chloramine, while the ammonia balance of 0.1 mg/L as N will remain in the water as free ammonia.

However, if the added ammonia dose in the above example was only 0.4 mg/L as N, then there is inadequate ammonia to react with the 2.5 mg/L chlorine. It is noted that the chlorine:ammonia ratio in this scenario is 6.25:1, which is calculated as $2.5 \div 0.4 = 6.25$. In this scenario, what will happen is a two-step process as follows:

- Step 1 (Rapid)** – The available ammonia will react very rapidly (<30 seconds) with available free chlorine at a ratio of 5:1 to form chloramine. Since only 0.4 mg/L $\text{NH}_3\text{-N}$ is added in the above example, then all the added ammonia will react with 2.0 mg/L of the free chlorine in the water (because $0.4 \times 5 = 2.0$) to form 2.0 mg/L chloramine. This leaves 0.5 mg/L of free chlorine in the water.
- Step 2 (Slow)** – Since free chlorine and chloramine are incompatible chemicals, they will react with each other at a relatively slow rate (about 15 to 20 minutes) until one of the two chemicals is completely destroyed. This is the chemical reaction commonly referred to as the “breakpoint reaction”. Under typical conditions, every 1 mg/L excess free chlorine remaining after Step 1 will react with somewhere between 1 and 2 mg/L of the chloramine formed in Step 1 reaction. For ease of calculation, it is reasonable to assume that every 1 mg/L excess chlorine reacts with 1.5 mg/L chloramine. Therefore, in the above example, the excess free chlorine of 0.5 mg/L remaining in the water will react with 0.75 mg/L (because $0.5 \times 1.5 = 0.75$) of the chloramine formed in Step 1. The remaining chloramine will be the only residual disinfectant remaining in the water, which is calculated as $2.0 - 0.75 = 1.25$ mg/L as Cl_2 .

In this example, while the water contained 2.5 mg/L chlorine before ammonia addition, the addition of 0.4 mg/L $\text{NH}_3\text{-N}$ resulted in the loss of as much as 1.25 mg/L of the chlorine residual within 15 minutes of flow after ammonia addition. For this reason, the possibility of adding an insufficient amount of ammonia to the water should be avoided as much as possible. It is for this reason that attempting to target a chlorine:ammonia ratio of 5:1 should be avoided because a slight error in the ammonia feed system that results in an under-feed of the ammonia solution can result in a significant loss of chlorine residual due to the unplanned breakpoint reaction. Therefore, it is safer to target a slight over-dose of ammonia such that an unforeseen error has a lower chance of triggering the breakpoint reaction.

Figure 3 shows a general schematic of chlorine and ammonia addition to a flowing water pipe, as well as the general control strategy that can be used to maintain a stable chlorine residual in the treated water. As noted above, chlorine is added first into the water to develop a target free chlorine residual. An online free chlorine analyzer is installed downstream to confirm that the target free chlorine residual is in the water just before ammonia addition. Figure 3 shows a static mixer at the point of chlorine addition. However, it is common that a static mixer is not available and hydraulic flow through the pipe is relied upon to achieve chemical mixing. In this case, it is critical that a sufficient distance is provided between the chlorine addition point and the chlorine analyzer takeoff point to

ensure adequate chemical mixing has occurred before the analyzer draws a sample for analysis. If the chemical is not fully mixed in the water by the time it reaches the analyzer, then the residual chlorine concentration is bound to fluctuate widely and cause erratic chemical feed controls. The reason is that the chlorine feed pump is controlled by a feed-back loop from the chlorine analyzer via a Programmable Logic Controller (PLC) as shown in Figure 3. The PLC is relied upon to modify the chlorine pump flow to achieve a pre-determined target chlorine residual at the analyzer.

Downstream of the analyzer, ammonia is then added to convert the free chlorine to chloramine. The ammonia feed pump flow is also controlled by the PLC to achieve the proper chlorine:ammonia ratio. Figure 3 also shows a static mixer at the point of ammonia addition, but that may not be in place in some cases. Sample taps 1 and 2 are indicated in Figure 3 to allow for the collection of grab samples to periodically check the free chlorine and total chlorine concentrations.

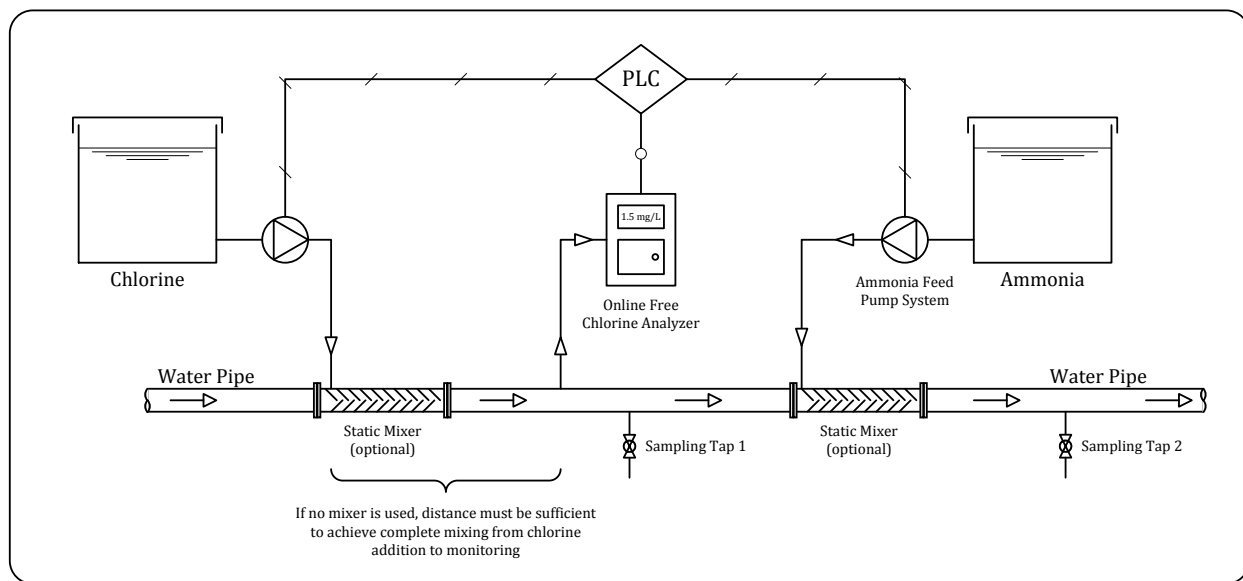


Figure 3 – General Schematic of Chlorine and Ammonia Addition to a Groundwater Source, and the Control Scenario that can be used to Maintain a Stable Total Chlorine Residual

CHLORAMINE DECAY

As water containing chloramine flows through the distribution system, the chloramine begins to decay similar to how free chlorine decays over time in water. This is caused by the reaction of chloramine with various constituents such as natural organic matter (NOM), biofilms present on the walls of pipes and tanks, iron corrosion scales in the system, and others. When chloramine decays, it releases the ammonia bound in the chloramine back into the water as free ammonia such as shown in Reaction 3 below for the reaction between chloramine and NOM as an illustration:



Since the chlorine and ammonia were bound at a 5:1 weight ratio, when the ammonia is released back into the water, the amount of ammonia released is thus 1/5th of the amount of chloramine decayed. For example, if the chloramine residual decreases by 1 mg/L as Cl₂, then the amount of ammonia-nitrogen released into the water is expected to be 0.2 mg/L as N (because $1 \div 5 = 0.2$). It is this increase in free ammonia that may result in biological nitrification as discussed later in this document.

CHLORAMINE MONITORING

There are three chemical constituents that are of interest when monitoring chloramine chemistry in a distribution system. They include:

1. Total Chlorine
2. Total Ammonia
3. Free Chlorine
4. Free Ammonia

The total chlorine and total ammonia concentrations can be measured by EPA-approved colorimetric methods using handheld instruments such as those purchased from HACH or other suppliers. However, while colorimetric methods are also available to measure the concentrations of free chlorine and free ammonia in the distribution system samples, their measurements are not recommended in a chloraminated system because they can only lead to confusion. First, since the sample was collected at least 30 minutes downstream of the ammonia addition point, it is chemically impossible for free chlorine to be present in combination with chloramine. For this reason, the free chlorine concentration should be automatically assumed to be zero regardless of whether a measurement suggests its presence. Second, while there are methods for measuring free ammonia in a water containing chloramine, these methods are not reliable, especially at low levels. WQTS does not recommend that colorimetric methods be used to measure free ammonia in a chloraminated water. Instead, WQTS recommends using the measured concentrations of total chlorine, expressed in mg/L as Cl₂, and total ammonia, expressed in mg/L as N, to calculate the free ammonia concentration in the water (based on the fact that chlorine and ammonia always combine in a 5:1 ratio) using the flowchart shown in Figure 4.

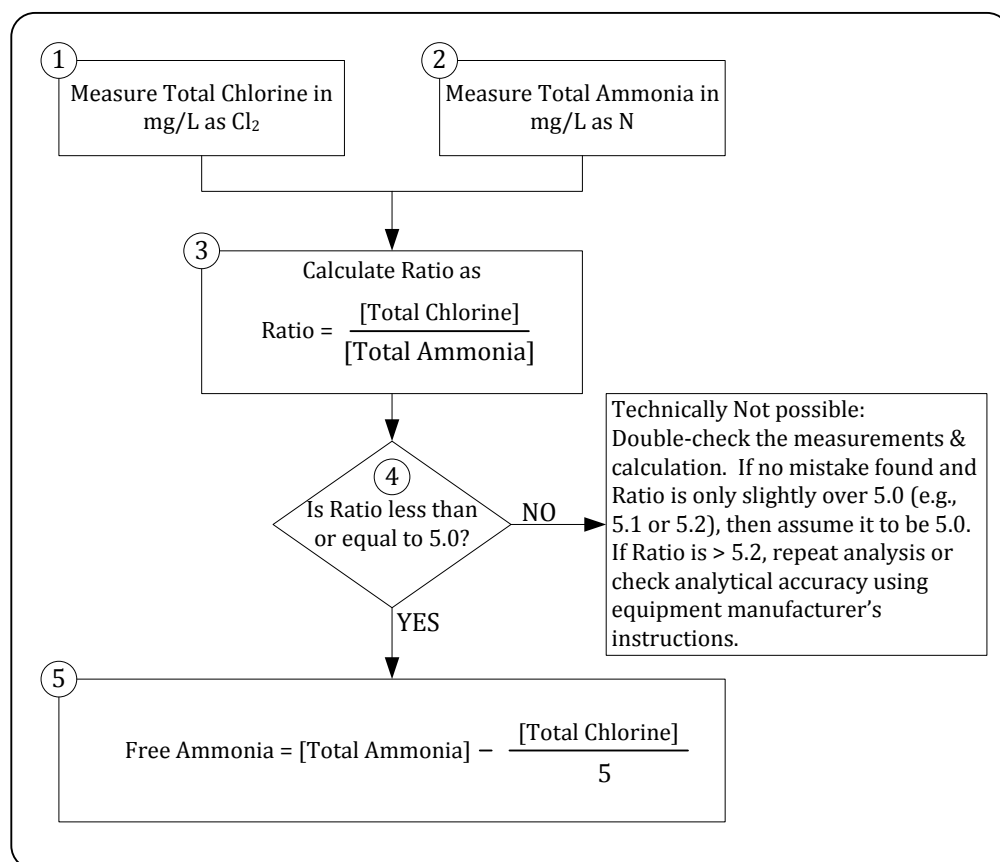


Figure 4 – Procedure to Calculate the Concentration of Free Ammonia in a Water Sample Collected from a Chloraminated Distribution System at a Location that is at least 30 minutes Downstream of any Chemical Addition Point (hydraulic flow time)

The following is an example of how to use the flowchart in Figure 4 to calculate the free ammonia concentration in a water distribution system sample collected from a location at least 30 minutes downstream of the nearest chlorine or ammonia addition point:

- Step 1 – Measure the total chlorine residual. Assume it was measured at 2.4 mg/L as Cl₂
- Step 2 – Measure the total ammonia concentration. Assume it was measured at 0.57 mg/L as N
- Step 3 – Calculate the Ratio of the two values as: $2.4 \div 0.57 = 4.21$
- Step 4 – Ratio is confirmed to be less than or equal to 5.0
- Step 5 – Free Ammonia is then calculated as: $[0.57] - [2.4/5] = [0.57] - [0.48] = 0.09$ mg/L as N

The check on whether the ratio is less than or equal to 5.0 in Step 4 is important because it represents a potential measurement or calculation error. The reason is that a water sample collected more than 30 minutes downstream of where the last location where either chlorine or ammonia was added should not have a ratio higher than 5.0. Having said that, if the ratio is very close to 5.0 (e.g., 5.1 or 5.2), then it could be attributed to normal analytical accuracy and can be assumed to be equal to 5.0. Note that at a ratio equal to 5.0, the free ammonia concentration will be zero.

SECTION 4.0 – NITRIFICATION OCCURRENCE

In a chloraminated system, nitrification refers to the consumption of ammonia-nitrogen by specific bacteria. Figure 5 shows a schematic representation of the two-step biological reactions that take place during a nitrification event. In the first step, Ammonia-Oxidizing Bacteria (AOBs) utilize dissolved oxygen to convert ammonia to nitrite, NO_2^- . A second type of bacteria, referred to as Nitrite-Oxidizing Bacteria (NOBs) then utilize more of the dissolved oxygen to convert the nitrite generated by the AOBs to nitrate, NO_3^- .

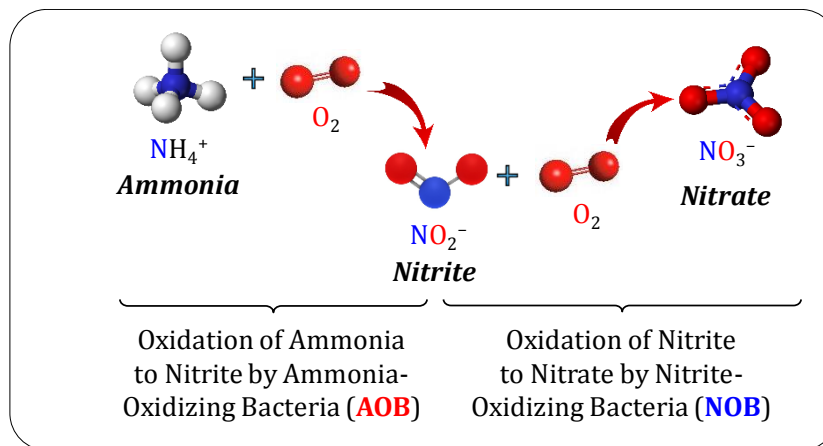


Figure 5 – Schematic Representation of Biological Nitrification Reactions

The prevalence of nitrification is driven by several contributing factors:

1. Excess free ammonia
2. Insufficient chloramine residual
3. Availability of bacterial hiding places
4. Long water stagnation time
5. Warm temperature
6. High organic carbon concentration

The following are brief discussions of the significance of each factor and how it affects nitrification.

Free ammonia serves as the primary “food” for AOBs, which kicks off the nitrification process. Therefore, it is always desirable that the concentration of free ammonia in the water be minimized as much as possible. Since the free ammonia concentration increases in the system as a result of loss of chloramine as discussed earlier, minimizing free ammonia concentration is achieved by minimizing the loss of chloramine residual as much as possible. Alternatively, if free ammonia is released after the loss of chloramine, chlorine can be added to re-combine the free ammonia to form chloramine, and thus boosting the chloramine residual and eliminating the availability of free ammonia as food for the AOBs.

Insufficient chloramine residual is a critical challenge in a chloraminated system because chloramine is relied upon to suppress the growth of nitrifying bacteria (i.e., both AOBs and NOBs). However, there is no avoiding the loss of chloramine residual as water travels through the distribution system and stagnates in storage tanks. Not only does this loss of residual reduce the concentration of the primary disinfectant, but also releases free ammonia into the water as noted above. For this reason, it is important that a sufficient chloramine residual be maintained in the water throughout the system.

Bacterial hiding places in a distribution system make it difficult to adequately disinfect the system even in the presence of a relatively high chloramine residual concentration. Specifically, bacteria can hide in corrosion scales and crevices on the inside surfaces of iron pipes, which protects them from the chloramine residual in the bulk water. Similarly, high concentration of bacterial cells can hide in sediment layers in pipes and storage tanks, which chloramine residual cannot easily penetrate. Therefore, even if the bulk water is confirmed to contain a high chloramine residual, if this residual cannot reach bacteria that are hiding in corrosion scales and sediment layers, then biological activity (i.e., nitrification) may not be adequately suppressed. This makes it important that the system be properly cleaned on a frequent basis in order to minimize the availability of bacterial hiding places.

Long water stagnation times in storage tanks is one of the most challenging aspects of operating a chloraminated distribution system. As water sits stagnant in a storage tank (or a dead end), more chloramine decay will take place resulting in a progressively lower chloramine residual, which releases more free ammonia in the water. Longer stagnation also provides more time for nitrifying bacteria to grow in the tank. Therefore, in the interest of minimizing the loss of chloramine residual, it is important not to allow the water to stagnate in a storage tank. Unfortunately, the time water sits in a storage reservoir is highly determined by the storage volume and the water demand in the zone served by that reservoir. Measures that can reduce stagnation times include allowing for wider fluctuations in the water volume in the tank by delaying the fill cycle until after the water volume decreases to lower levels than typical. For example, while the District may currently limit water level fluctuations in the tank to no more than two feet before the fill cycle is initiated, increasing this fluctuation allowance to four feet or more makes more room for system water to enter the tank and boost the chloramine residual level in the overall water. It is noted that this action will also reduce the frequency of filling the tank with fresh water since the District will have to wait longer to fill the tank. Finding the right operational scenario is highly dependent on the quality of the water and the operational conditions of each zone.

Warm Water Temperature results in accelerated chloramine loss and accelerated bacterial growth. Clearly, there is nothing that the District can do about the temperature of the water it receives into the system. However, it is important for District operations staff to recognize the fact that chloramine loss and incidences of nitrification will increase during summer months when the water temperature is higher than winter months. Fortunately, with higher demands in the summer months, the water will stagnate for shorter times in the reservoirs compared to winter months. Nonetheless, it is the

SECTION 4 – NITRIFICATION OCCURRENCE

experience of most systems that the detrimental effect of higher water temperature is greater than the beneficial effect of shorter stagnation times.

Higher Organic Carbon Concentrations in the water increases the concern over nitrification because the organic carbon serves as a necessary food for the nitrifying bacteria. In addition, higher organic carbon concentration results in a higher chloramine loss rate. Therefore, greater nitrification incidences will take place in a water containing higher organic carbon levels. For the District, the total organic carbon (TOC) concentration in the groundwater is significantly lower than that in the imported surface water. Even for the surface water, it can contain vastly different levels of TOC concentration depending on whether the Weymouth WTP is treating predominantly CRW water, which is low in organic content, or predominantly SWP water, which is high in organic content. Therefore, it is important that the District remain fully informed on a weekly basis of which water source is being treated by Metropolitan at the Weymouth WTP.

SECTION 5.0 – NITRIFICATION PREVENTION

The previous section presented and discussed the various factors that promote the occurrence of nitrification in a water distribution system. Therefore, nitrification prevention aims at controlling or eliminating these contributing factors to the extent possible. Specifically, there are three focus areas for the District to consider for nitrification prevention:

1. Reduce water age
2. Maintain a clean system
3. Boost chloramine residual

The following is a discussion of each measure.

REDUCE WATER AGE

Long water age in storage reservoirs is probably the largest contributor to the occurrence of nitrification in chloraminated distribution systems. There are two values of the water age to consider: the first is the “average” water age, which is simply the ratio between the storage volume, V, in a service zone, and the total water demand, D, in that zone:

$$\text{Average Water Age} = [\text{Volume}] / [\text{Demand}] = [V / D]$$

For example, the District’s data show that the demand on Zone 11 during the period of June 1 through August 15, 2018, was approximately 98,000 gallons per day. The storage volume in Zone 11 is that of Pickens Canyon Reservoir, which was, on average, 365,000 gallons during that period. Therefore, the average water age in Zone 11 during that period was 3.7 days, or approximately 90 hours.

$$\text{Average Water Age} = [365,000] / [98,000] = 3.7 \text{ days}$$

It is important to note that this value is in addition to the time the water took to travel from the sources to Zone 11, which is likely to be several additional days.

Therefore, to reduce the average water age in a zone, one can reduce the storage volume or increase water demand. Lowering the storage volume in a reservoir is feasible, but it goes against the desire to maximize storage volume for firefighting. Increasing apparent water demand can be induced by increased hydrant flushing during low demand periods. However, flushing is not only wasteful but also goes against the District’s water conservation efforts and will be frowned upon by customers. Nonetheless, lowering storage volume and frequent flushing can help reduce the average water age in the system.

Aside from the “average” water age, one should be concerned about the “true” water age in a tank. The true water age is not a single value, but a distribution of values. For example, while the average water age in Pickens Canyon Reservoir was calculated in the above example at 3.7 days, some water entering the Reservoir will sit in the reservoir for a shorter time, and some will sit in the reservoir

SECTION 5 – NITRIFICATION PREVENTION

for a longer time. It is the portion with the long water age that is of concern because it provides an opportunity for nitrifying bacteria to increase in numbers to a level that is difficult to control. Therefore, while there is no avoiding the fact that the water age will have a range of values, it is desirable to narrow the range as much as possible for the purpose of minimizing or eliminating long water age in the tank.

Of specific concern are reservoirs that experience thermal stratification due to slight temperature differences between the water volume in the tank and that entering the tank. In general, the water entering the tank is slightly colder than the water that had been sitting in the tank. This is especially true for aboveground steel tanks, which is how most of the District's tanks are in the upper zones. As the colder water enters the bottom of the tank, it remains at the bottom of the tank and the warmer water simply floats up and down on top of the cold water. When water is exiting the tank from the bottom, the cold water which had just entered the tank and remained at the bottom will be the first to exit the tank. This "first-in-first-out" behavior results in continued stratification of the water in the tank, with the warmer water on top having a much longer water age than the water entering-and-exiting the tank. The water with the longer residence time will likely have a lower chloramine residual and greater free ammonia and may develop significant biological nitrification. Unfortunately, since most monitoring is conducted on the water entering or exiting the tank, the operator may not know that nitrification is taking place in the tank until a high demand period draws enough water from the tank such that the nitrified water enters the system and seed nitrifying bacteria to the rest of the system.

With the above in mind, it is important to conduct proper monitoring to determine if stratification is taking place in each tank in the system, and then make modifications that minimize or eliminate it. To assess whether stratification is taking place, the District should conduct depth monitoring of each tank during the summer season when the probability of stratification and nitrification is higher. The Parameters to be monitored include temperature and total chlorine. Depth sampling can be conducted with a portable depth sampler that District staff can lower into the reservoir from a roof hatch and collect samples at different depths, or using permanent sample taps installed along the depth of the reservoir. If sample taps are installed, it is important that they do not terminate at the wall of the reservoir, but rather extend several feet into the water body to ensure that a bulk water sample is being collected.

If stratification is determined to be prevalent and a serious contributor to nitrification in a tank, the District may need to make changes to the piping configuration of the tank to force water to enter the tank from the top and exit from the bottom. Alternatively, the District may install a mixing system in the tank to prevent stratification. The District can use commercially available tank mixers or design and construct an engineered pumped-water mixing system in the tank where water is pumped from the bottom and discharged at the top of the tank.

MAINTAIN A CLEAN SYSTEM

As discussed in the previous section, nitrifying bacteria can hide in crevices and sediments that protect the bacteria from chloramine. Most common crevices are those created by iron corrosion scales in unlined iron pipes. Sediments are also prevalent in distribution system piping, especially dead-end pipes, and storage tanks. In order to minimize the availability of these hiding places, it is important that the District maintain a clean distribution system.

System cleaning includes two components: 1) unidirectional flushing (UDF) and 2) tank cleaning. UDF refers to a planned flushing program that manipulates system valves to allow for the generation of a minimum scouring velocity when a hydrant is opened. The velocity should be high enough to scour the sediment and biofilms, but not too high to dislodge corrosion tubercles from unlined iron pipes, which could eventually compromise the integrity of the pipe. To remove silt and loose sediment, the velocity may need to only be between 3 and 5 feet-per-second, fps. However, in order to dislodge biofilms, the velocity needs to be higher than 6 fps. In the design of a UDF program, system valves are manipulated to direct sufficient water towards the open hydrant in order to result in the required velocity. Monitoring is then conducted on the flushed water to decide when to turn off the hydrant and move to another section in the system.

The District is familiar with tank cleaning practices and should continue with it on a regular basis. The District's 5-year rotation of tank cleaning is a reasonable practice.

BOOST CHLORAMINE RESIDUAL

A sufficient chloramine residual is the best deterrent against biological nitrification. Unfortunately, as the water moves through the system from one zone to another, it will continue to lose chloramine residual. This will result in the lowest chloramine residual in the upper zones of the system, mainly Zones 10 and 11. The two reservoirs in these two zones, Shields and Pickens Canyon, are essentially "terminal" reservoirs in that the water in them is only used locally and is not pumped to other zones. Therefore, if other measures – such as flushing to increase demand or cleaning – are not sufficient to maintain a sufficient chloramine residual in the tanks, localized boosting of the chloramine residual may be necessary.

There are two ways of boosting the chloramine residual in a reservoir. The simple(r) approach is to utilize the available free ammonia in the tank and in the water entering the tank to boost the residual by adding only chlorine to bind the free ammonia and recombine it to form chloramine. This requires that sufficient free ammonia be present in the water to support the target increase in chloramine residual. If that is not the case because the free ammonia had already been consumed, then the more complicated approach needs to be employed in which both chlorine and ammonia need to be added to the water to achieve the target increase in chloramine residual.

Manual Chloramine Boosting

If the need to boost the chloramine residual in a specific reservoir is infrequent, then it can be conducted by District staff using a manual chlorine feed system. Figure 6 presents a conceptual schematic of a manual chlorine boosting system that the District can assemble and use as a mobile chlorine boosting station. The system includes a sodium hypochlorite feed tank, a metering pump, a flowmeter, a check-valve, and isolation valves. The District can assemble such system and use it to boost the chloramine residual at a specific tank. For this system to work, there needs to be above-ground access to the inlet pipe to the tank along with an injection point (as shown). In addition, the District should be able to modify the “FILL” and “EMPTY” trigger set points in SCADA to ensure that the tank is in FILL mode during the entire boosting period.

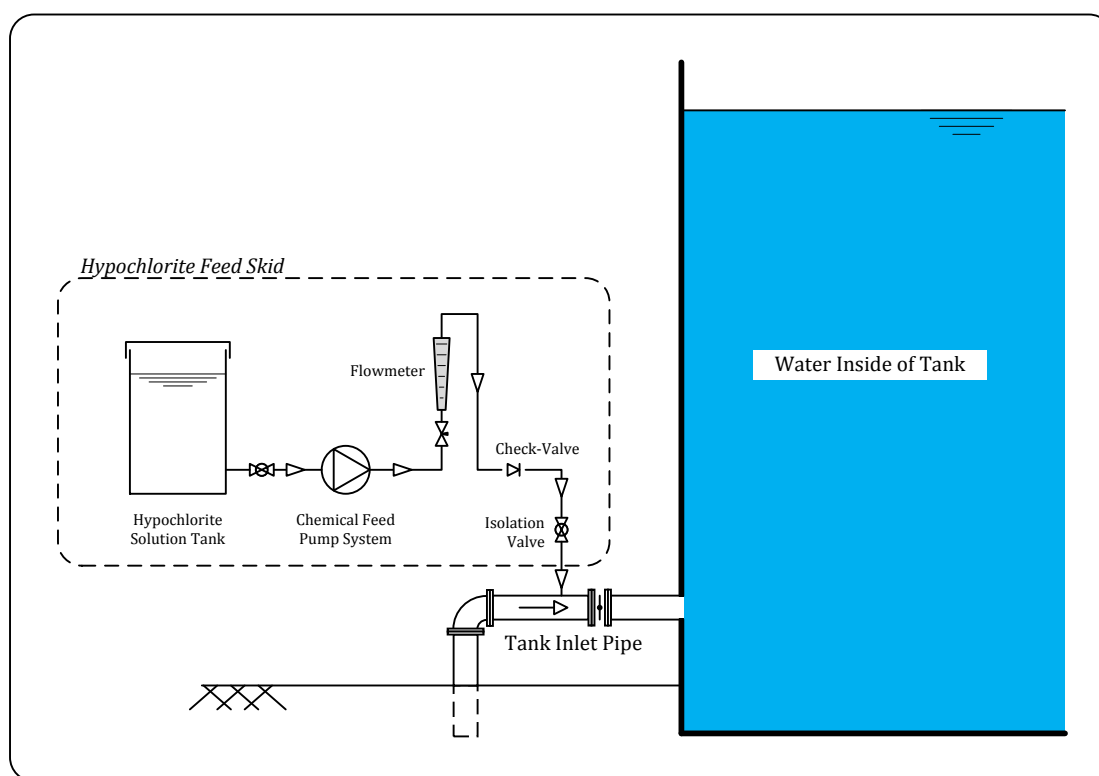


Figure 6 – Schematic Representation of a Manual Chloramine Boosting Skid

If the District assembles the hypochlorite feed system depicted in Figure 6, it can use the Chloramine Boosting Calculator developed by WQTS and delivered to the District. A screenshot of the calculator is shown in Figure 7. This calculator already has the required information regarding each reservoir such as volume/ft of depth (same as those in Table 1), minimum water depth, and maximum water depth. The Calculator includes three sections: The left section titled: “INPUT KNOWN INFORMATION:” is where a user enters all known information and is self-explanatory. The middle section titled: “CALCULATED VALUES:”, and a right-side section titled: “READ CHLORINE DOSING CALCULATIONS:”. The following is a discussion of the content of each section.

SECTION 5 – NITRIFICATION PREVENTION

In the INPUT KNOWN INFORMATION section, there are four types of information to enter:

Tank Information: including tank name from a drop-down menu, starting water level, water level at end of fill, and the expected fill rate. In the example shown, Dunsmore Tank is selected, which sets the unit volume per ft of depth as shown at 17,131 gal/ft, while the starting water level is set at 17 ft, the water level at the end of the fill cycle is set at 20 ft, and the expected fill rate is projected at 0.5 ft/hr. It is noted that this value can be changed any time by the user.

Calculator - Chloramine Boosting
Developed by WQTS for the Crescenta Valley Water District – © 2018
www.WQTS.com

Version 2.0

ENTER VALUES IN YELLOW CELLS ONLY

INPUT KNOWN INFORMATION:

Today's Date:

Tank Information:
Select Tank:
Water Volume/ft of Depth = 17,131 gal/ft
Starting Water Level = 17.0 ft
Water Level at End of Fill = 20.0 ft
Expected Fill Rate = 0.50 ft/hr

Chemical Quality of water in Tank Prior to Fill:
Total Chlorine = 0.50 mg/L
Total Ammonia-N = 0.40 mg/L as N
Nitrite-N = 0.050 mg/L as N

Chemical Quality of water Entering the Tank During Fill:
Total Chlorine = 1.80 mg/L
Total Ammonia-N = 0.45 mg/L as N

Other Information:
Chlorine Stock Strength = 10.5 % by wt.
Chlorine Stock Specific Gravity = 1.1

CALCULATED VALUES:

Tank Information:
Starting Volume = 291,225 gallons
Ending Volume = 342,617 gallons
Volume Added = 51,393 gallons
Fill Rate = 143 gpm

Chemical Quality of water in Tank Prior to Fill:
Total Chlorine = 0.50 mg/L
Free Ammonia-N = 0.30 mg/L

Chemical Quality of water After the Fill (without Boosting):
Total Chlorine = 0.70 mg/L
Free Ammonia-N = 0.27 mg/L
Max. Chlorine Boost Possible = 1.34 mg/L

Max. Possible Chloramine after Boosting = 2.04 mg/L

READ CHLORINE DOSING CALCULATIONS:

Calculations for Chlorine BOOSTING:
Total lbs of Chlorine to Add = 4.44 lbs
Stock Chlorine Feed Rate = 0.74 lbs/hr
Feed Duration = 6.0 hrs
Stock Solution Feed Rate = 0.77 gal/hr
Stock Solution Feed Rate = 48.5 mL/min
Stock Chlorine Volume Needed = 4.61 gallons

INPUT RESULTS AFTER BOOSTING (optional):
Total Chlorine = mg/L
Total Ammonia-N = mg/L as N
Nitrite-N = mg/L as N

Message Board:

**Figure 7 – Screenshot of the Reservoir Chloramine Boosting Calculator
Developed by WQTS for the District**

Chemical Quality of the water in the Tank to be boosted: Values required include the total chlorine residual, total ammonia concentration, and nitrite concentration. These parameters should be measured from a water sample collected from the water in the tank. If it is not possible to collect a water sample from the inside of the tank, a sample from the water EXITING the tank during operation can be used. In the example shown in Figure 7, the water in the tank was determined to contain 0.5 mg/L total chlorine, 0.4 mg/L as N of total ammonia, and 0.05 mg/L as N of nitrite.

Chemical Quality of the water Used to Fill the Tank: Values required include the total chlorine residual and total ammonia concentration. These parameters should be measured from a water sample collected from the zone from which water will be pumped to the target tank to fill it. In the example shown in Figure 7, the water to be pumped into the tank was determined to contain 1.8 mg/L total chlorine and 0.45 mg/L as N of total ammonia.

Other Information: This section requires information on the hypochlorite solution used to boost the chlorine residual. Specifically, the calculator asks for stock solution strength in percent by wt. and the solution's specific gravity. In the example shown in Figure 7, the hypochlorite solution contains free chlorine at 10.5% by wt., and has a specific gravity of 1.1. It should be noted that while the percent chlorine content in a fresh hypochlorite solution may have been 12.5%, its chlorine content degrades over time, and therefore it is important that the true chlorine content in the solution be determined in order to enter the accurate value in the calculator.

In the CALCULATED VALUES section, there are three types of parameters for which values are presented:

Tank Information: This section documents the calculated starting volume in the tank, final volume after fill, volume of water added, and the anticipated fill water flowrate. In the example shown, the starting water volume is 291,225 gallons, the ending volume is 342,617 gallons, and the fill rate is projected at 143 gpm.

Chemical Quality of the Water in the Tank Prior to Fill: This section documents the calculated total chlorine concentration in the tank water (which was entered by the user) as well as the calculated free ammonia concentration in the water. In the example shown, the total chlorine residual in the tank prior to fill was 0.5 mg/L and the free ammonia concentration was calculated at 0.3 mg/L as N.

Chemical Quality of the Water in the Tank after the Fill WITHOUT Boosting: This section documents what the chemistry of the water in the Tank would be if it is filled with the available water without chlorine boosting. This is added to the calculator to help the user determine if the filled tank water would have satisfactory total chlorine residual without having to boost it. In the example shown, if the tank is filled with the available water without boosting, it would contain a total chlorine residual of 0.7 mg/L and the free ammonia concentration of 0.27 mg/L as N.

Also shown at the bottom of this middle section the “*Max. Possible Chloramine after Boosting*”, which for the conditions shown in Figure 7 is calculated at 2.04 mg/L. This value is calculated to alert the user about the maximum possible residual that can be achieved with boosting. If this value is deemed insufficient, then the user may decide to forego the boosting exercise and implement other measures, if any are available. Alternatively, the user may decide to implement boosting, but also implement other measures to aid in avoiding nitrification.

Finally, in the right-hand-side section, the calculator presents the operating conditions for the boosting system. Based on the information provided, the calculator ultimately determines the hypochlorite solution feed rate and the total solution volume needed. In the example shown, the calculator determines that the solution feed rate during the 6-hr fill period is 0.77 gal/hr, or 48.5 mL/min, and the total solution volume required is projected at 4.61 gallons. This information is used to set the pumping rate and the volume of hypochlorite solution to have available to complete the task.

SECTION 5 – NITRIFICATION PREVENTION

To use the above calculator for a specific tank, the following steps should be implemented:

- Step 1 – Temporarily modify the FILL trigger set-point for that Tank in SCADA to allow the water level to be lowered to a low level “A”.
- Step 2 – Allow the demand in the tank to lower the Tank level to “A”. During this step, measure the total chlorine concentration, total ammonia concentration, and the nitrite concentration in the water exiting the tank while it is emptying.
- Step 3 – While the tank is emptying, take a water sample from the vicinity of the pump station that will fill the tank and analyze it for total chlorine, total ammonia, and nitrite. If the nitrite concentration in the Tank is high (e.g., >100 µg/L), then it is advisable that this water be discarded and not emptied into the system.
- Step 4 – While the tank is still emptying, use the Chloramine Boosting Calculator to estimate the minimum hypochlorite solution volume needed and the anticipated solution feed rate. Use level “A” as the starting level in the calculator and decide on the full water level “B” the operator wants to bring the tank to. Level “B” MUST be lower than the EMPTY trigger set point in SCADA. In other words, as the tank is filling from level “A” to level “B”, the fill pumps must be ON at all times which forces the tank to be in fill mode.
- Step 5 – By the time the tank reaches level “A”, the chlorine boosting station should be ready to feed chlorine. However, if the operator is unsure of the tank fill rate required by the calculator (i.e., ft/hr), then the operator should wait until the water level rises to 1 ft above level “A”, calculate the rise rate as 1 divided by the number of hours the water level took to rise by this 1 ft. For example, if it took 1.5 hrs for the water level to increase by 1 ft, then the fill rate entered into the calculator is 0.67, which is calculated as $[1/1.5]$.
- Step 6 – As the tank is filling with water and the chlorine is being boosted, the operator should take samples from the influent water upstream of boosting to confirm that the original values used are still correct and should time the rise rate and make adjustment to the fill-rate in the calculator as deemed necessary.
- Step 7 – When the water level reaches level “B”, which is BELOW the EMPTY trigger set point, the chlorine boosting system should be turned off and disconnected from the influent pipe to the tank.
- Step 8 – Before the Tank begins to discharge into the system, it is important to test the water in the tank and confirm that it contains acceptable total chlorine concentration, that the total ammonia is within the vicinity of 1/5th the total chlorine, and that the nitrite concentration is low.

IMPORTANT NOTE: The chlorine dose applied to the influent water during boosting could be much higher than 4 mg/L because it is designed to combine with the free ammonia in the tank and boost the residual in the tank water as well. Therefore, it is CRITICAL that the tank is in FILL mode throughout the boosting exercise. Therefore, the operator must be absolutely sure that the FILL and

EMPTY trigger set points in SCADA will NOT allow the Tank to empty while the water is rising from level “A” to level “B”. If the tank begins to empty while the booster is ON, the water entering the distribution system will contain unacceptably high levels of chlorine residual. This should be stopped immediately.

Automatic Chloramine Boosting

If a tank has a chronic problem of losing chlorine residual that requires frequent intervention by the operator and becomes a significant draw on resources, the District may decide to invest in a permanent automatic chloramine boosting system. Example suppliers of such systems include *UGSI Solutions, Inc.* (www.ugsicorp.com), which provides the **Monoclor**® RCS system, or *Medora Corporation, Inc.* (www.medoraco.com), which provides the **ResidualHQ**® system. These are not recommended systems but are only referenced as examples. Both systems are designed to draw water out of a tank, monitor its residual concentration, boost the residual in the drawn water as necessary, and circulate it back into the tank. These systems are more costly than the manual system described above, and include various mechanical components and instrumentation that requires routine maintenance like other equipment used by the District.

SECTION 6.0 – NITRIFICATION MONITORING

The most important step in mitigating nitrification in distribution systems is “monitoring”. Strict monitoring of water quality across the distribution system will provide the District with critical information about pending nitrification occurrences in various tanks and thus afford the District the opportunity to implement mitigation measures to prevent them. This is a critical aspect of nitrification control because stopping a nitrification event when the bacterial level is still low has a much higher chance of success compared to responding after nitrifying bacterial counts have increased to uncontrollable levels in the tank.

A nitrification monitoring program is designed to look for signs of nitrification. Based on the material presented in earlier sections of this document, nitrification is accompanied by three water quality changes:

1. Loss of chloramine residual
2. Loss of total ammonia concentration
3. Increase in nitrite concentration

While the above changes occur when biological nitrification takes place, they are not all conclusive indicators of nitrification. For example, many other factors contribute to the loss of chloramine residual in the water, such as chloramine demand by natural organic matter or auto-decomposition of chloramine. Similarly, while loss of total ammonia suggests that some non-chemical action is consuming the ammonia, the analytical method for total ammonia can easily be off by 0.1 mg/L as N or greater. In addition, background biological activity unrelated to nitrification also consumes some ammonia. For these reasons, reductions in either chloramine or ammonia level is not a direct indicator of nitrification.

On the other hand, nitrite is formed exclusively by the action of nitrifying bacteria on free ammonia-nitrogen in the water. Therefore, it is a direct indicator of the onset of nitrification. Moreover, nitrite is easy to measure at levels as low as 0.010 mg/L as N with colorimetric methods using handheld field instruments. For this reason, monitoring nitrite levels in a chloraminated distribution system is a critical component of nitrification monitoring. In addition to the above, other water quality parameters to monitor include pH, temperature, coliform bacteria, and HPC bacteria. The bacteriological quality of the water is already collected under the Bacterial Monitoring Plan as required under Title 22. The bacterial samples to be collected under a nitrification monitoring program only need to be conducted on samples collected from storage tanks and only if they contain a total chlorine residual that is below a minimum threshold concentration that raises concern over the bacteriological quality of the water at that location. WQTS recommends the adoption of a minimum total chlorine residual threshold of 0.5 mg/L as Cl_2 .

Table 2 lists the parameters to be monitored, their possible analytical method, and the frequency of their monitoring. Table 3 lists the specific locations where the parameters in Table 2 are to be monitored each week of the month, which include three Point of Entry (POE's), 17 tanks, and four (4)

SECTION 6 – NITRIFICATION MONITORING

dead-ends. It is recommended that monitoring be conducted on Mondays and Tuesdays in each week to allow time during the subsequent week days to identify and remedy problem areas in the system.

Table 2 – List of Parameters to be Monitored, their Possible Methods, and Frequency

Parameter	Method (or Equivalent)	Frequency
Total Chlorine, mg/L as Cl ₂	DPD Method (Hach Method 10070)	Weekly
Total Ammonia-Nitrogen	Hach Method 8155 (Salicylate Method)	Weekly
Nitrite, mg/L as N	Hach Method 8507 (Diazotization method)	Weekly
pH	Standard Method 4500H	Weekly
Temperature, °C	Standard Method 2550	Weekly
Total Coliforms, MPN/100mL	MPN (density) Method	Conditional
HPC Bacterial Counts, CFU/mL	Pour Plate PCA Media	Conditional

Coliform and HPC analysis is to be conducted only on Tank Samples that contain < 0.5 mg/L total chlorine

Table 3 – Possible Locations of Weekly Nitrification-Related Water Quality Monitoring

Week 1	Week 2	Week 3	Week 4	Week 5
Point of Entry (POE)				
Glenwood Effluent	Glenwood Effluent	Glenwood Effluent	Glenwood Effluent	Glenwood Effluent
Mills Effluent	Mills Effluent	Mills Effluent	Mills Effluent	Mills Effluent
FMWD Connections	FMWD Connections	FMWD Connections	FMWD Connections	FMWD Connections
Storage Tanks				
All 17 Tanks	All 17 Tanks	All 17 Tanks	All 17 Tanks	All 17 Tanks
Dead Ends (Block Numbers Listed)				
2800 Manhattan ⁽¹⁾	2000 Hilldale ⁽²⁾	3700 Park Place ⁽¹⁾	3000 Manhattan ⁽²⁾	3400 Altura ⁽³⁾
4600 Briggs ⁽³⁾	3100 Fairmont ⁽⁴⁾	4400 Rockland ⁽³⁾	2300 El Sereno ⁽⁴⁾	2300 El Moreno ⁽⁵⁾
4700 New York ⁽⁵⁾	5000 Humphrey ⁽⁶⁾	3400 Gromer ⁽⁷⁾	3100 Markridge ⁽⁸⁾	3300 Hopeton ⁽⁹⁾
2700 Rockpine ⁽⁹⁾	5200 Ramsdell ⁽⁸⁾	2600 Seapine ⁽⁹⁾	2700 Starfall ⁽¹⁰⁾	2800 Pinelawn ⁽¹⁰⁾
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(#) = Zone Number

The sampling locations in Table 3 are divided into three categories: Point-of-Entry (POE's), Storage Tanks, and dead ends. There POE's are to be monitored each week, and they are the effluent of the Glenwood WTP, the effluent of the Mills WTP, and any active FMWD connection(s).

Storage tank samples are to be collected from all 17 tanks each week. It is important that tank samples are collected from the inside of the tanks or from the outlet pipe. If water is collected from the inside of the tank, it is important that the sample line extends few feet away from the water and into the water volume in the tank in order to collect as much of a bulk-water sample as possible. If a tank has a common inlet-outlet line, then the sample should be collected only when the tank is

SECTION 6 – NITRIFICATION MONITORING

emptying, and not when it is filling. If the sample is taken from the pipe while the tank is filling, then that sample will not be representative of water in the tank, but rather the water in the distribution system entering the tank. The sampler should carry Bacterial sampling bottles with him/her during the rounds. If the total chlorine residual from the tank is less than the recommended threshold concentration of 0.5 mg/L as Cl_2 , then a bacterial sample should be collected and analyzed.

For dead ends, the sample locations selected were all blow-off valves, with the exception of two locations which are fire hydrants: 3700 Park Place (week 3) and 2000 Manistee (Week 5). It is understood that the water in the line from the main to the valve will have no measurable chlorine residual. It is important that sufficient water flows through the line until a chlorine residual is detected before any of the other parameters are taken. Regardless of the chlorine residual level, no bacterial samples need to be collected from these dead ends.

SECTION 7.0 – NITRIFICATION RESPONSE ACTION PLAN

The previous sections discussed how to monitor for parameters that are associated with nitrification, and how to implement measures to prevent or suppress nitrification. This section utilizes the results of the monitoring effort described in Section 6 to identify signs of imminent or active nitrification and recommends response actions to stop the progress of nitrification and/or reverse it using the preventive measures discussed in Section 5.

The two water quality changes that are most associated with concern over nitrification are nitrite formation and loss of chlorine residual. For this reason, response action plans are recommended for trigger levels of each parameter. Table 3 lists the recommended trigger levels for nitrite levels in storage tanks. Three levels are noted:

Level 1: Background – Nitrite less than 0.015 mg/L as N (i.e., 15 µg/L as N).

Level 2: Nitrification is Developing – Nitrite between 0.015 mg/L as N and 0.030 mg/L as N.

Level 3: Active Nitrification – Nitrite greater than 0.030 mg/L as N.

For each level, a number of response actions are recommended. For Level 1, a nitrite level below 0.015 mg/L as N is considered to be a background level and thus no action is required. For Level 2, with nitrite between 0.015 mg/L as N and 0.030 mg/L as N, it is believed that nitrification is developing and requires attention. Under this condition, the District should increase monitoring beyond the weekly frequency, and take active steps to move water in and out of the tank to reduce water age, which may require flushing in the target tank's service area. Finally, for Level 3, with nitrite in the tank exceeding 0.030 mg/L as N, nitrification is considered to be in full action and immediate action is required. Specifically, the District should take actions to boost chloramine in the tank, increase tank cycling frequency with daily monitoring, and be prepared to take the tank off line and convert the tank to free chlorine if the mitigation actions are not successful in suppressing nitrification.

Table 3 – Nitrite Concentration Alert Levels in Storage Tanks and Potential Response Action

Nitrite Level Trigger	Level	Meaning	Response
$\text{NO}_2\text{-N} < 0.015 \text{ mg/L as N}$	1	Background	No Action
$0.015 < \text{NO}_2\text{-N} < 0.030 \text{ mg/L as N}$	2	Nitrification is developing	Increase monitoring, move water to reduce water age, flush if needed
$\text{NO}_2\text{-N} > 0.030 \text{ mg/L as N}$	3	Active Nitrification	Boost chloramine, increase cycling frequency, go to daily monitoring, be prepared to convert the water in the tank to free chlorine if necessary

Another parameter that warrants action triggers is total chlorine residual concentration. It is important to note that while an increase in nitrite concentration is a direct indicator of nitrification, the loss of total chlorine is not. It only suggests that nitrification could occur soon – or already is

SECTION 7 – NITRIFICATION RESPONSE ACTION PLAN

active – since the only disinfectant in the water is becoming too low to suppress bacterial growth. With that in mind, Table 4 presents recommended total chlorine trigger levels and corresponding response actions. The three recommended levels are:

1. Total Chlorine Residual >1.5 mg/L as Cl₂
2. Total Chlorine Residual between 0.5 mg/L and 1.5 mg/L as Cl₂
3. Total Chlorine Residual <0.5 mg/L as Cl₂

A total chlorine residual in a water tank greater than 1.5 mg/L as Cl₂ is likely to be sufficient to adequately suppress biological growth in the tank. However, if the total chlorine residual in the tank decreases to a range between 0.5 mg/L and 1.5 mg/L as Cl₂, while this level of residual may be sufficient, it suggests that there is active loss of residual considering the fact that the water entering the distribution system had as much as 2.5 mg/L total chlorine. Therefore, if the residual chlorine is in this middle range, the District may consider increasing the tank monitoring frequency to multiple times a week and make an effort to move water in and out of the tank to raise the residual concentration. However, if the total chlorine residual in the tank decreases to less than 0.5 mg/L as Cl₂, it may be incapable of suppressing biological activity, and there is a strong likelihood that biological nitrification will soon take place (if not already active). Under this condition, the District should consider taking action to boost the chloramine residual in the tank if there is sufficient free ammonia available, increase tank cycling, flush the system, and go to daily monitoring to ensure that nitrification is not allowed to take over the water in the tank. The District should also be prepared to remove the tank from service if it is not able to raise the total chlorine residual above 0.5 mg/L as Cl₂ for any extended period of time.

Table 4 – Total Chlorine Concentration Alert Levels in Tanks and Potential Response Action

Total Chlorine Trigger	Meaning	Response
>1.5 mg/L as Cl ₂	Good	No Action
0.5 to 1.5 mg/L as Cl ₂	Moderate	Increase monitoring, move water to raise residual
<0.5 mg/L as Cl ₂	Low	Boost chloramine, increase tank cycling frequency, flush to increase demand and lower water age, go to daily monitoring, be prepared to remove the tank from service

While the above information provides recommendations for tracking and preventing nitrification, it should be noted that, at times, the response actions may not be successful at meeting their goals. If the District is not able to raise the total chlorine residual above 0.5 mg/L for at least a 24-hour period without intervention, the District should consider taking the tank off line and determining if the water should be disposed or should be converted to free chlorine and flushed into the system. However, if the water is determined to have positive total coliform bacteria, it should not be served into the system.

SECTION 7 – NITRIFICATION RESPONSE ACTION PLAN

Finally, on a weekly basis, the District should organize the data collected in a single database, generate trends of each parameter over time at each location, and then discuss them at a weekly operations meeting. This will greatly help the District stay on top of the data and ensure that imminent problems are addressed before they materialize.

CRESCENTA VALLEY WATER DISTRICT

STAFF REPORT

Information Item No. 3
November 8, 2023

To: Engineering and Operations Committee
From: Brook Yared, M.S., P.E. – Interim Director of Engineering and Operations
Subject: Project Update - CVWD-LADWP Interconnection, E-766

INFORMATION ITEM:

Project Update - CVWD-LADWP Interconnection, E-766 – Update regarding a new emergency interconnection with Los Angeles Department of Water and Power (LADWP).

BACKGROUND:

In 2012, CVWD constructed an interconnection at the Ordunio Reservoir site with LADWP. This was part of grant funding from Proposition 50 to provide regional water supply reliability to all Foothill Municipal Water District (FMWD) Member Agencies. At the time of construction, this interconnection was meant to convey 2.2 Cubic Feet per Second (CFS) of water from LADWP's system into CVWD's zone 2. The larger plan was to convey this LADWP water from Ordunio to Oceanview and utilize the chloramine conversion infrastructure at Ocean View to convey the water to FMWD in case of a shutdown at Metropolitan Water District's (MWD) Weymouth Treatment Plant in La Verne.

Due to the City of Los Angeles' inability to sell water directly to MWD customers, an agreement was never made to allow the operation of the facility. Staff kept the facility in place in case emergency water was needed whether an agreement was replaced or not. During the Well 2 project, the emergency interconnection was set up for Supervisory Control and Data Acquisition (SCADA) monitoring and control.

During the drought in late 2022, water providers that were reliant on the State Water Project (SWP) faced reliability issues after strict allocation amounts were set. LADWP and MWD along with CVWD staff, began meeting to determine if there was any way to convey water from the Colorado River Aqueduct (CRA) to LADWP's system. Weymouth Treatment Plant receives water from both the SWP and CRA. This would provide LADWP with more resiliency should persistent drought reduce the SWP allocation to 2022 levels in the future.



Figure 1: CVWD-LADWP Intertie, 2023

DISCUSSION:

On Thursday, October 26, 2023, CVWD staff met with LADWP at the Ordunio Reservoir site. We performed a brief flow test at the site to confirm that all infrastructure was still in working order. All meters were found to be operating properly, and aside from a few leaks at gaskets that had dried out since the project was constructed, all the pipelines were also in good operating condition.

We also discussed measures that would need to be taken for CVWD to operate the Emergency Interconnection. It is critical that CVWD perform these actions in preparation of a Weymouth Treatment Plant shutdown happening in February 2024, to have ample water supply to assist FMWD Member Agencies for the duration of the 10-day shutdown.

At this time, project work necessary to convey water back to LADWP was not discussed, since that project work would require the installation of new high horsepower pumps. Once the interconnection is

online and tested, we plan to begin negotiations with FMWD and LADWP for the infrastructure improvements to convey water back to LADWP.

Site Changes: LADWP is requiring that an air gap and backflow preventer be installed at Interconnection to prevent any chance of water seeping back into their system. Staff will also need to calibrate the flow control valve at the site and replace all the gaskets in the area.

DDW Permitting: Once plans are drawn up showing the backflow prevention changes, CVWD will need to apply for an operating permit for the Interconnection. This will detail the SCADA controls involved with the operation of the facility. It will also spell out the break point chlorination at the site that will be required to accept chloraminated water from LADWP.

FMWD-LADWP Interconnection Agreement: An agreement between FMWD and LADWP will be required to allow for the transfer of water back to LADWP, since direct sales of potable water between LADWP and MWD agencies is still prohibited.

Prepared by:


Kellen Boyce
System Operations Manager

Submitted by:


Brook Yared, M.S., P.E.
Interim Director of Engineering & Operations

Attachments: None

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CRESCENTA VALLEY WATER DISTRICT

STAFF REPORT

Information Item No. 4
November 8, 2023

To: Engineering and Operations Committee
From: Brook Yared, M.S., P.E. – Interim Director of Engineering and Operations
Subject: Project Update - Water Main Repair on the Rosemont Ave. Overcrossing, Project E-1070

INFORMATION ITEM:

Project Update - Water Main Repair on the Rosemont Ave. Overcrossing, Project E-1070 – Discussion regarding construction and inspection activities on the Rosemont Overcrossing.

BACKGROUND:

On August 30, 2023, there was a water main break on the 12-inch pipeline that crosses over the 210 Freeway at Rosemont Ave. This main break resulted in the closing of the westbound lanes of the 210 Freeway. The main was able to be isolated with only two customers being affected by the shutdown, One residential customer on the northwest corner of intersection of Rosemont and Mayfield and a Cal Trans irrigation meter used to irrigate plants on the freeway embankment. In the weeks since the incident, staff has taken various steps to restore service to existing meters in the area and make a repair to the main so it can be returned to service.

DISCUSSION:

Fire Flow testing: The first step that staff took after isolating the damaged main was performance of a Fire Flow test south of the freeway. This was done to ensure that isolating the main in the crossing did not restrict flows to the point that it sacrificed our ability to provide water for fire protection in the area. The Fire Flow test was performed on September 14, 2023 and was found to be sufficient for fire protection, which provided staff additional time to trouble shoot the damage and find a more permanent solution.

Confined Space Entry and Inspection: The first step in determining the extent of the damage to the pipeline in the overcrossing was to contact Caltrans and attain construction details for the overcrossing. When the overcrossing was constructed, maintenance access holes were installed in the precast concrete structure. Since excavation on precast structures such as freeway overcrossings is not allowed, staff planned to use the maintenance holes on the bridge to perform a confined space inspection of the pipeline on the south of the bridge. CVWD staff had never performed a confined space entry on any of its overcrossings prior to this main break. There were safety concerns regarding performing the confined space entry, so staff decided to hire a contractor, Ancon Inc., to assist with the confined space entry.

The inspection was performed on September 22, 2023, with Ancon and Caltrans teams in attendance. It was determined that the leak took place inside of a casing on the south end of the 210 Freeway. The exact location of the damage still could not be determined at that time, but the general location was found.

Exploratory Excavation: On October 16, 2023, after reviewing as-built information, staff purchased a new bore hole inspection camera that would allow us to inspect the annular space between the existing pipe casing and the pipeline. CVWD crews potholed in the area and exposed the casing.



Figure 1: Interior of the Rosemont Overcrossing



Figure 2: Bore Inspection Snapshot of Leak

After removing a small section of the casing, the borehole camera was deployed, and we were able to see the damaged section of the pipe. The break was much larger than staff anticipated. Fortunately, the break in the pipe was south of the Rosemont Overcrossing and could be excavated and repaired using conventional methods.

Future Repair Plans: Starting on November 6, 2023, CVWD crews will be repairing between 35-40 LF of 12-inch main south of the freeway overcrossing on Rosemont Ave. A new 12-inch valve will be installed so that isolation of the main can be performed in the future without discontinuing service to any CVWD customers. This will allow CVWD to plan for a cast-in-place pipe solution in an upcoming budget without causing any additional public inconvenience.

Prepared by:

Darlene Telles
Distribution Operations Manager

Submitted by:

Brook Yared, M.S., P.E.
Interim Director of Engineering & Operations

Attachments: None

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CRESCENTA VALLEY WATER DISTRICT

STAFF REPORT

Information Item No. 5

November 8, 2023

To: Engineering and Operations Committee
From: Brook Yared, M.S., P.E. – Interim Director of Engineering and Operations
Subject: Project Update - Water Main Replacement on the 3000-3100 Blocks of Montrose Ave., Project E-1067

INFORMATION ITEM:

Project Update - Water Main Replacement on the 3000-3100 Blocks of Montrose Ave., Project E-1067 –

Update regarding the main and pavement replacement on the 3000-3100 Blocks of Montrose Ave.

BACKGROUND:

On August 11, 2023, there was a major water main break on the existing 10-inch pipeline in front of 3013 Montrose Ave that resulted in significant road damage, causing erosion of the subgrade under the existing paving in the area. The water main on Montrose Ave was previously identified as a common location for leaks and was in line for future planned replacement. The break itself was a result of aging infrastructure (pipeline installed in 1961). CVWD staff successfully repaired the main break, but the repair was identified as temporary, with the watermain within the 3000 and 3100 block categorized as in need of emergency repair. Prior to repairing the pavement damaged by the leak, staff recommends to first repair the water main to eliminate multiple construction mobilizations and future leaks due to the aged infrastructure. Staff moved forward preparing in-house design plans and specifications and requested from the Board of Directors the authority to request bids and award a contract for the construction of the water main replacement.

DISCUSSION:

After presenting bid results at the Board Meeting on October 24, 2023, CVWD awarded the pipeline replacement contract to Toro Enterprises, Inc. (Toro) for the replacement of the existing 10-inch main on the 3000-3100 block of Montrose Ave. Materials were ordered for the project in August 2023 based on the 50% design drawing that staff had put together for the work. Staff anticipates all materials to be in by the week of November 13, 2023.

Final design plans were submitted to the City of Glendale for review. The City of Glendale has requested that CVWD proceed with construction and that permitting be finalized as an “after the fact” permit. The last remaining elements for permit approval are traffic control plans, which are being created by Toro. A Preconstruction meeting has been scheduled for Thursday, November 9, 2023, to review construction plans and attain any unsubmitted utility plans for the area. Toro plans to begin exploratory excavation and placing no parking signs the week of November 13, 2023, once permits are approved. Construction is planned to start after the materials have been received.

Prepared by:



Elias Sebhatu, P.E.
Senior Engineer

Submitted by:



Brook Yared, M.S., P.E.
Interim Director of Engineering & Operations

Attachments: None

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CRESCENTA VALLEY WATER DISTRICT

STAFF REPORT

Information Item No. 6

November 8, 2023

To: Engineering and Operations Committee
From: Brook Yared, M.S., P.E. – Interim Director of Engineering & Operations
Subject: Status Update - FY 23/24 Capital Improvement Project Budget

DISCUSSION:

The following is a status and budget update of the FY 23/24 Capital Improvement Program.

1. 2600 & 2700 Blocks of Orange & 5000 Block of El Adobe (E-1046)

- a. Rock and Paving Negotiations
 - i. Paving Quantity reduced to 16,000 sq-ft from 18,000 sq-ft
 - ii. Requesting reduction in Unit Price cost from J. Vega Construction

FY 2023/24 CIP Program Cost Update: 11/8/23	E-Job	Recorded FY 22/23	Budget FY 23/24	<i>FY 23/24 Cost to date from 7/1/23 to 11/8/23</i>	Projected FY 23/34
<i>2600 & 2700 Block of Orange & 5000 Block of El Adobe - 2700 LF</i>	E-1046	\$392,301	\$1,350,050	\$948,640	\$100,000 - \$200,000

2. 3000 & 3100 Blocks of Montrose Ave (E-1067)

- a. See Memo

FY 2023/24 CIP Program Cost Update: 11/8/23	E-Job	Budget FY 23/24	<i>FY 23/24 Cost to date from 7/1/23 to 11/8/23</i>	Projected FY 23/34
<i>3000 & 3100 Blocks of Montrose Ave - 1650 LF</i>	E-1067	\$0	\$155,000	1,290,916

3. Rosemont Overcrossing Repairs – E-1070

- a. See Memo
- b. Inspection of Additional Overcrossings
 - i. La Crescenta Ave.
 - ii. Ramsdell Ave.
 - iii. Briggs Ave.
 - iv. Ocean View Ave.
- c. Future CIPP main relining and Isolation Valve installation

4. Transfer of Services to Glendale Water and Power (E-1051)

- a. Transfer of Services on Frederick and Thelma (1929) to Glendale Water and Power to avoid capital replacement.
- b. Work is planned to begin with Glendale in December 2023.

5. Steel Reservoir Rehabilitation

- a. Edmund No. 2 (E-1036)
 - i. Warranty Repairs – November 13, 2023
- b. Goss Canyon No. 1 (E-1053)
 - i. Warranty Inspection – May 2024
- c. Goss Canyon No. 2 (E-1066)
 - i. Finalizing Specifications
 - ii. Work Scheduled to begin week of December 4, 2023

FY 2023/24 CIP Program Cost Update: 11/8/23	E-Job	Recorded FY 22/23	Budget FY 23/24	<i>FY 23/24 Cost to date from 7/1/23 to 11/8/23</i>	Projected FY 23/34
<i>Goss Canyon #2 - Reservoir Rehabilitation</i>	E-1066	\$ -	\$818,000	\$6,555	\$811,445

6. Replacement of SCADA Equipment, Programming & Integration (E-939)

- a. Project Schedule – April 2022 to March 2024
- b. APEX – Sites Pending Integration (2023)
 - i. Edmund I
 - ii. Edmun II
 - iii. Goss Canyon
 - iv. Dunsmore
 - v. Pickens
 - vi. Shields
- c. Radio Communication Upgrade – Moved to FY 23/24

FY 2023/24 CIP Program Cost Update: 11/8/23	E-Job	Recorded FY 22/23	Budget FY 23/24	<i>FY 23/24 Cost to date from 7/1/23 to 11/8/23</i>
<i>Communication Radio Network</i>	E-1025	\$ -	\$25,000	\$ -
<i>SCADA Replacement - Installation</i>	E-939	\$266,063	\$100,000	\$12,215

7. AMI – Installation of ¾” & 1” meters (E-1035)

- a. Currently 119 customers are waiting to be configured for the Customer Engagement Platform
- b. 356 are active on the Customer Engagement Platform
- c. Approximately 7074 radios and lids to install/replace
- d. 160, ¾ & 1-inch meters including laterals to replace

8. AMI – Installation of 3” & 4” meters (E-1031) – USBR Grant

- a. Install and connect 32 – 3” & 4” meters – Deadline extended
 - i. Testing meter adapters for radios on steel lids
- b. 1-1/2-inch meter installation – Grant awarded in late 22/23, Installation beginning week of November 27, 2023

FY 2023/24 CIP Program Cost Update: 11/8/23	E-Job	Recorded FY 22/23	Budget FY 23/24	<i>FY 23/24 Cost to date from 7/1/23 to 11/8/23</i>
<i>AMI - Communication</i>	E-1020	\$ 29,902	\$ -	\$ -
<i>GRANT - 3" & 4" Smart Meters</i>	E-1031	\$24,731	\$ -	\$ -
<i>AMI - Meter Lids - Zones 9, 10 & 11</i>	E-1035	\$192,694	\$ -	\$ -
<i>GRANT - 1-1/2" Smart Meters - USBR Grant</i>	E-1041	\$ -	\$ 335,000	\$ -

9. Conversion of Disinfection System to Chloramines (E-1052)

- a. See Memo

FY 2023/24 CIP Program Cost Update: 11/8/23	E-Job	Recorded FY 22/23	Budget FY 23/24	<i>FY 23/24 Cost to date from 7/1/23 to 11/8/23</i>
<i>Conversion to Chloramination</i>	E-1052	\$20,840	\$ 80,000	\$30,075

10. Grant Funding Opportunities

- a. FEMA Local Hazard Mitigation Plan (M-1004)
- i. Project 1 – New emergency electrical generators at 5 sites - Deferred pending Grant availability
 - ii. Project 2 – Seismic Evaluation of CVWD’s facilities application – Deferred pending Grant availability
- b. Carl Moyer Grant – New Dump Truck, transitioned to SCAQMD SOON program for additional funding
- c. Water Recycling Grant – Application Submitted July 10, 2023

11. New Pressure Reducing Station & Rehabilitation of the Ramsdell Mixing Station (E-977)

- a. Hydraulic Modeling Review Complete
- b. Installation of two fire hydrants to provide additional bypass options to Zone 1 – FY 23/24

FY 2023/24 CIP Program Cost Update: 11/8/23	E-Job	Recorded FY 22/23	Budget FY 23/24	<i>FY 23/24 Cost to date from 7/1/23 to 11/8/23</i>
<i>Upgrade - Ramsdell Mixing Station</i>	E-977	\$7,645	\$60,000	\$ -

12. CVWD-LADWP Interconnection

- a. Changes to the Interconnection
- b. DDW Permitting

13. Well 2

- a. Developing permit amendment for a bypass option to avoid repairs to the Biological Nitrate Removal Facility. PFAS issue discussion.

14. Well 14

- a. Investigation Complete and Changes Implemented
- b. New Pump Installed on November 2, 2023

FY 2023/24 CIP Program Cost Update: 11/8/23	E-Job	Recorded FY 22/23	Budget FY 23/24	<i>FY 23/24 Cost to date from 7/1/23 to 11/8/23</i>	Projected FY 23/34
<i>Well 14 Rehabilitation</i>	E-1065	\$ -	\$150,000	\$ 121,784	\$10,000

15. Paschall Booster B

- a. Rental Pump Installed
- b. Vertical Turbine Pump installation to continue after Annual Pump and Well Contract 23/24 award

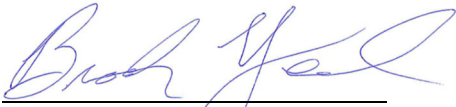
16. Wastewater Master Plan

- a. Draft 1 review December 2023

SUMMARY:

Staff will continue to update the Engineering Committee on FY 23/24 CIP spending throughout the course of the year.

Prepared & submitted by:



Brook Yared, M.S., P.E.

Interim Director of Engineering & Operations

Attachments: None

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CRESCENTA VALLEY WATER DISTRICT

STAFF REPORT

Information Item No. 7
November 8, 2023

To: Engineering and Operations Committee
From: Patrick Atwater, Regulatory and Public Affairs Manager
Subject: PFOS Sampling Results

INFORMATION ITEM:

Discussion of PFOS Regulations and Sampling Results

BACKGROUND:

Per- and polyfluoroalkyl substances (PFAS) are a group of more than 12,000 human-made substances that are not naturally occurring and are resistant to heat, water, and oil. These chemicals have been used and produced extensively in the United States for both commercial and industrial purposes, as well as for emergency fire response. Due to their unique chemistry, PFAS have been widely used as surface coatings and protectant formulations in consumer goods such as carpet and home textiles; clothing; food packaging; and non-stick cookware. PFAS substances have also been used as a surfactant in chrome plating, firefighting foam, and other industrial applications. In typical conditions, PFAS are resistant to degradation and do not break down in the environment. These substances can accumulate within the human body and are toxic at relatively low concentrations.

On March 14, 2023, US EPA announced the proposed National Primary Drinking Water Regulation (NPDWR) for six PFAS including perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), perfluorononanoic acid (PFNA), hexafluoropropylene oxide dimer acid (HFPO-DA, commonly known as GenX Chemicals), perfluorohexane sulfonic acid (PFHxS), and perfluorobutane sulfonic acid (PFBS). US EPA is proposing a maximum contaminant level (MCL) for PFOA and PFOS of 4 ng/L. US EPA is also proposing health-based, non-enforceable Maximum Contaminant Level Goals (MCLGs) for these six PFAS.

DISCUSSION:

The District began its UCMR 5 testing in late February. Upon receiving results for the laboratory, the District informed the Department of Drinking Water (DDW) that there were sample results greater than the DDW notifications levels for PFOA, PFOS, and PFHxs. Samples collected at imported water only locations were all not detected for any PFOS substances. DDW requested the District perform confirmation samples and additional samples on the District's groundwater wells.

On April 19, 2023, the District collected confirmation samples at UCMR 5 sampling locations and samples from CVWD groundwater wells. These are the results that are summarized in the attached table. In summary, nearly half of the District's wells had PFOA or PFOS above the States Notification Levels and one location, Well 8, greater than the State's Response Level. Please note that Well 9 was undergoing rehabilitation and unable to be sampled.

Staff developed a mass balance at Glenwood to estimate the contribution of Well 8 on the combined flow exiting the Glenwood Nitrate Facility. The table below summarizes those results based on the average flows for the month of June 2023 and the sampling results collected in April. Additional samples were collected in June, July and August. The samples collected after April all show a large drop in concentrations of PFOA, PFOS and all other Gen-X constituents, but concentrations of certain wells were still above the proposed federal MCL.

The District has continued monitoring and has sampled on June 28, July 19, August 8 and September 11 of 2023. In the September sampling, Wells 1, 8 and 11 showed levels above the US EPA's proposed MCL of 4 ng/L for PFOA. Well 8 had a result of 5.1 ng/L of PFOA, below the result of 23 ng/L of PFOA from the Well 8 April sample. Well 8 also had a PFOS result of 4.5 ng/L

Prepared by:



Patrick Atwater
Regulatory and Public Affairs Manager

Submitted by:



Brook Yared, MS, PE
Interim Director of Engineering & Operations

Attachments:

1. PFAS Sampling Results – September 2023
2. PFOA and PFOS Concentration Summary – September 2023

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PFAS Results September 2023

Sample Date 9/11/2023

EPA 533 in ng/L

Sample Description	PFBA	PFBS	PFDA	PFHpA	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPoS
Well 8	4.8	6.5	ND	2.4	7.4	5.7	ND	5.1	4.5	8	1.6
Glenwood Plant Blend	3.9	5.1	ND	2.3	5.9	4.4	ND	3.4	1.9	6.7	1.2
Wells 1, 5, 7 & 9	4.5	6.2	ND	2.4	7.1	4.9	ND	3.8	0.89	8.2	1.5
Well 11	5.2	9	ND	3.3	7.9	5.1	ND	6.3	2.8	8.5	1.3
Well 5	3.5	5	ND	1.8	5.9	4	ND	3	0.82	6.5	1.3
4703 Briggs	3.6	2.5	ND	1.2	2.9	1.8	ND	1.9	0.87	3.4	ND
Encinal Reservoir	3.4	2.8	ND	1.3	3.1	2.1	ND	2.1	1.2	3.9	ND
Well 1	4.8	8.2	ND	2.9	8	5.9	ND	5.3	1.8	8.8	1.6
Well 7	4.6	6.5	ND	2.4	7.9	5.6	ND	3.5	0.83	9.6	1.6
Well 9	6.2	6.5	ND	2.5	6.8	3.8	ND	4.4	0.98	8.1	1.2
Williams Reservoir	3.6	2.9	ND	1.4	3.4	2.3	ND	2.2	1.2	3.9	ND
Paschall	3.2	ND	ND	ND	0.96	ND	ND	0.98	0.8	1.2	ND
Well 12	4.1	6	ND	3	7.9	5	ND	3.9	0.93	8.3	1.3
Well 16	2.4	2.6	ND	1.1	3.7	2.6	ND	1.3	ND	4.5	1.1
Well 10	2.5	3	ND	1.1	3.3	1.8	ND	1.5	ND	4.2	0.79

Point of Use data - Proposed Federal MCL 4 ng/L MCL

Proposed Hazard Index regulation

Regulated by the State Division of Drinking Water

Over US EPA proposed MCL

* all field blank data ND unless otherwise specified.

RED TEXT

Over the States Response Level

CVWD Glenwood PFOA Concentration Summary – September 2023

Date	Glenwood Well 8 GPM	Hours	PFOA, ng/L	Glenwood Well 10 GPM	Hours	PFOA, ng/L	Glenwood Well 12 GPM	Hours	PFOA, ng/L	Glenwood Well 14 GPM	Hours	PFOA, ng/L	Glenwood Well 16 GPM	Hours	PFOA, ng/L	Glenwood Booster Pump Discharge, GPM	Hours	Calculated PFOA in effluent, ng/L	Sampled PFOA in effluent, ng/L	Glenwood Well 5 GPM	Hours	PFOA, ng/L	Glenwood Well 11 GPM	Hours	PFOA, ng/L	FMWD Briggs Flow, GPM	Hours	PFOA, ng/L	Calculated PFOA at Point of Use ng/L	Sampled PFOA at Point of Use
1-Sep-23	169.45	24.00		49.16	24.00		179.95	24.00		0.00	0.00		101.71	24.00		515.71	24.00	3.44		193.50	24		92.97	24		515.71	24		2.60	
2-Sep-23	169.52	24.00		49.22	24.00		179.92	24.00		0.00	0.00		101.58	24.00		516.52	24.00	3.43		188.45	24		91.85	24		516.52	24		2.59	
3-Sep-23	169.43	24.00		49.18	24.00		180.16	24.00		0.00	0.00		101.75	24.00		514.56	24.00	3.45		190.59	24		92.72	24		514.56	24		2.60	
4-Sep-23	169.30	24.00		49.12	24.00		179.82	24.00		0.00	0.00		101.63	24.00		514.37	24.00	3.44		188.81	24		91.83	24		514.37	24		2.60	
5-Sep-23	166.38	24.00		48.69	24.00		179.88	24.00		0.00	0.00		101.46	24.00		512.48	24.00	3.42		254.21	24		92.15	24		512.48	24		2.62	
6-Sep-23	163.40	24.00		48.53	24.00		180.08	24.00		0.00	0.00		100.88	24.00		507.04	24.00	3.43		233.75	24		91.95	24		507.04	24		2.61	
7-Sep-23	163.07	24.00		48.77	24.00		179.86	24.00		0.00	0.00		101.50	24.00		507.44	24.00	3.43		233.02	24		92.20	24		507.44	24		2.61	
8-Sep-23	162.90	24.00		48.72	24.00		179.83	24.00		0.00	0.00		101.46	24.00		506.75	24.00	3.43		230.96	24		91.47	24		506.75	24		2.61	
9-Sep-23	163.02	24.00		48.60	24.00		180.28	24.00		0.00	0.00		101.17	24.00		503.17	24.00	3.46		215.28	24		91.25	24		503.17	24		2.61	
10-Sep-23	163.35	24.00		48.43	24.00		179.98	24.00		0.00	0.00		100.54	24.00		509.29	24.00	3.41		230.43	24		90.90	24		509.29	24		2.61	
11-Sep-23	163.35	24.00	5.10	48.43	24.00	1.50	179.98	24.00	3.90	0.00	0.00	-	100.54	24.00	1.30	509.29	24.00	3.41	3.40	230.43	24	3	90.90	24	6.3	509.29	24	0.98	2.61	2.1
12-Sep-23	163.60	24.00		48.23	24.00		180.03	24.00		0.00	0.00		100.71	24.00		508.17	24.00	3.42		230.72	24		90.75	24		508.17	24		2.61	
13-Sep-23	163.37	24.00		48.53	24.00		180.28	24.00		0.00	0.00		100.46	24.00		507.79	24.00	3.43		228.85	24		90.40	24		507.79	24		2.61	
14-Sep-23	163.83	24.00		48.60	24.00		180.03	24.00		0.00	0.00		100.38	24.00		507.85	24.00	3.43		222.22	24		91.92	24		507.85	24		2.61	
15-Sep-23	163.72	24.00		48.56	24.00		180.07	24.00		0.00	0.00		100.21	24.00		506.10	24.00	3.44		225.02	24		92.37	24		506.10	24		2.61	
16-Sep-23	163.62	24.00		48.60	24.00		179.95	24.00		0.00	0.00		100.21	24.00		507.67	24.00	3.43		218.93	24		91.25	24		507.67	24		2.61	
17-Sep-23	163.38	24.00		48.48	24.00		180.03	24.00		0.00	0.00		100.04	24.00		509.90	24.00	3.41		225.00	24		91.82	24		509.90	24		2.61	
18-Sep-23	167.51	24.00		48.56	24.00		180.04	24.00		0.00	0.00		100.13	24.00		507.90	24.00	3.46		223.34	24		91.43	24		507.90	24		2.61	
19-Sep-23	174.42	24.00		48.39	24.00		180.21	24.00		0.00	0.00		99.96	24.00		520.42	24.00	3.45		221.70	24		91.90	24		520.42	24		2.60	
20-Sep-23	174.37	24.00		47.90	24.00		180.00	24.00		0.00	0.00		100.04	24.00		519.17	24.00	3.45		204.89	24		91.80	24		519.17	24		2.60	
21-Sep-23	174.33	24.00		47.77	24.00		180.47	24.00		0.00	0.00		100.04	24.00		516.71	24.00	3.47		224.15	24		91.60	24		516.71	24		2.60	
22-Sep-23	174.42	24.00		48.01	24.00		180.32	24.00		0.00	0.00		100.04	24.00		519.98	24.00	3.45		206.11	24		91.20	24		519.98	24		2.60	
23-Sep-23	174.63	24.00		47.78	24.00		180.26	24.00		0.00	0.00		100.25	24.00		519.42	24.00	3.46		187.34	24		91.45	24		519.42	24		2.59	
24-Sep-23	174.98	24.00		47.84	24.00		180.21	24.00		0.00	0.00		100.38	24.00		520.48	24.00	3.45		182.03	24		91.95	24		520.48	24		2.59	
25-Sep-23	174.93	24.00		47.85	24.00		180.19	24.00		0.00	0.00		100.25	24.00		520.56	24.00	3.45		205.75	24		91.50	24		520.56	24		2.60	
26-Sep-23	174.98	24.00		48.11	24.00		179.99	24.00		0.00	0.00		100.08	24.00		518.48	24.00	3.47		258.48	24		91.75	24		518.48	24		2.61	
27-Sep-23	174.95	24.00		47.93	24.00		180.19	24.00		0.00	0.00		100.13	24.00		521.69	24.00	3.44		237.95	24		91.20	24		521.69	24		2.60	
28-Sep-23	175.03	24.00		48.30	24.00		180.08	24.00		0.00	0.00		100.00	24.00		519.35	24.00	3.46		232.53	24		92.05	24		519.35	24		2.61	
29-Sep-23	175.02	24.00		47.89	24.00		180.42	24.00		0.00	0.00		100.00	24.00		519.75	24.00	3.46		237.35	24		91.55	24		519.75	24		2.61	
30-Sep-23	175.07	24.00		48.01	24.00		180.80	24.00		0.00	0.00		100.04	24.00		518.79	24.00	3.47		210.08	24		90.50	24		518.79	24		2.60	

*Sampling date highlighted in blue.

** All cells in calculated columns are calculated based on same monthly sampling data

CVWD Glenwood PFOS Concentration Summary – September 2023

Date	Glenwood Well 8 GPM	Hours	PFOS, ng/L	Glenwood Well 10 GPM	Hours	PFOS, ng/L	Glenwood Well 12 GPM	Hours	PFOS, ng/L	Glenwood Well 14 GPM	Hours	PFOS, ng/L	Glenwood Well 16 GPM	Hours	PFOS, ng/L	Glenwood Booster Pump Discharge, GPM	Hours	Calculated PFOS in effluent, ng/L	Sampled PFOS in effluent, ng/L	Glenwood Well 5 GPM	Hours	PFOS, ng/L	Glenwood Well 11 GPM	Hours	PFOS, ng/L	FMWD Briggs Flow, GPM	Hours	PFOS, ng/L	Calculated PFOS at Point of Use ng/L	Sampled PFOS at Point of Use
1-Sep-23	169.45	24.00		49.16	24.00		179.95	24.00		0.00	0.00		101.71	24.00		515.71	24.00	1.80		193.50	24		92.97	24		515.71	24		1.37	
2-Sep-23	169.52	24.00		49.22	24.00		179.92	24.00		0.00	0.00		101.58	24.00		516.52	24.00	1.80		188.45	24		91.85	24		516.52	24		1.38	
3-Sep-23	169.43	24.00		49.18	24.00		180.16	24.00		0.00	0.00		101.75	24.00		514.56	24.00	1.81		190.59	24		92.72	24		514.56	24		1.38	
4-Sep-23	169.30	24.00		49.12	24.00		179.82	24.00		0.00	0.00		101.63	24.00		514.37	24.00	1.81		188.81	24		91.83	24		514.37	24		1.38	
5-Sep-23	166.38	24.00		48.69	24.00		179.88	24.00		0.00	0.00		101.46	24.00		512.48	24.00	1.79		254.21	24		92.15	24		512.48	24		1.35	
6-Sep-23	163.40	24.00		48.53	24.00		180.08	24.00		0.00	0.00		100.88	24.00		507.04	24.00	1.78		233.75	24		91.95	24		507.04	24		1.36	
7-Sep-23	163.07	24.00		48.77	24.00		179.86	24.00		0.00	0.00		101.50	24.00		507.44	24.00	1.78		233.02	24		92.20	24		507.44	24		1.36	
8-Sep-23	162.90	24.00		48.72	24.00		179.83	24.00		0.00	0.00		101.46	24.00		506.75	24.00	1.78		230.96	24		91.47	24		506.75	24		1.36	
9-Sep-23	163.02	24.00		48.60	24.00		180.28	24.00		0.00	0.00		101.17	24.00		503.17	24.00	1.79		215.28	24		91.25	24		503.17	24		1.36	
10-Sep-23	163.35	24.00		48.43	24.00		179.98	24.00		0.00	0.00		100.54	24.00		509.29	24.00	1.77		230.43	24		90.90	24		509.29	24		1.36	
11-Sep-23	163.35	24.00	4.50	48.43	24.00	0.00	179.98	24.00	0.93	0.00	0.00	-	100.54	24.00	0.00	509.29	24.00	1.77	1.90	230.43	24	0.82	90.90	24	2.8	509.29	24	0.8	1.36	1.2
12-Sep-23	163.60	24.00		48.23	24.00		180.03	24.00		0.00	0.00		100.71	24.00		508.17	24.00	1.78		230.72	24		90.75	24		508.17	24		1.36	
13-Sep-23	163.37	24.00		48.53	24.00		180.28	24.00		0.00	0.00		100.46	24.00		507.79	24.00	1.78		228.85	24		90.40	24		507.79	24		1.36	
14-Sep-23	163.83	24.00		48.60	24.00		180.03	24.00		0.00	0.00		100.38	24.00		507.85	24.00	1.78		222.22	24		91.92	24		507.85	24		1.36	
15-Sep-23	163.72	24.00		48.56	24.00		180.07	24.00		0.00	0.00		100.21	24.00		506.10	24.00	1.79		225.02	24		92.37	24		506.10	24		1.36	
16-Sep-23	163.62	24.00		48.60	24.00		179.95	24.00		0.00	0.00		100.21	24.00		507.67	24.00	1.78		218.93	24		91.25	24		507.67	24		1.36	
17-Sep-23	163.38	24.00		48.48	24.00		180.03	24.00		0.00	0.00		100.04	24.00		509.90	24.00	1.77		225.00	24		91.82	24		509.90	24		1.36	
18-Sep-23	167.51	24.00		48.56	24.00		180.04	24.00		0.00	0.00		100.13	24.00		507.90	24.00	1.81		223.34	24		91.43	24		507.90	24		1.36	
19-Sep-23	174.42	24.00		48.39	24.00		180.21	24.00		0.00	0.00		99.96	24.00		520.42	24.00	1.83		221.70	24		91.90	24		520.42	24		1.36	
20-Sep-23	174.37	24.00		47.90	24.00		180.00	24.00		0.00	0.00		100.04	24.00		519.17	24.00	1.83		204.89	24		91.80	24		519.17	24		1.37	
21-Sep-23	174.33	24.00		47.77	24.00		180.47	24.00		0.00	0.00		100.04	24.00		516.71	24.00	1.84		224.15	24		91.60	24		516.71	24		1.36	
22-Sep-23	174.42	24.00		48.01	24.00		180.32	24.00		0.00	0.00		100.04	24.00		519.98	24.00	1.83		206.11	24		91.20	24		519.98	24		1.37	
23-Sep-23	174.63	24.00		47.78	24.00		180.26	24.00		0.00	0.00		100.25	24.00		519.42	24.00	1.84		187.34	24		91.45	24		519.42	24		1.38	
24-Sep-23	174.98	24.00		47.84	24.00		180.21	24.00		0.00	0.00		100.38	24.00		520.48	24.00	1.83		182.03	24		91.95	24		520.48	24		1.38	
25-Sep-23	174.93	24.00		47.85	24.00		180.19	24.00		0.00	0.00		100.25	24.00		520.56	24.00	1.83		205.75	24		91.50	24		520.56	24		1.37	
26-Sep-23	174.98	24.00		48.11	24.00		179.99	24.00		0.00	0.00		100.08	24.00		518.48	24.00	1.84		258.48	24		91.75	24		518.48	24		1.35	
27-Sep-23	174.95	24.00		47.93	24.00		180.19	24.00		0.00	0.00		100.13	24.00		521.69	24.00	1.83		237.95	24		91.20	24		521.69	24		1.35	
28-Sep-23	175.03	24.00		48.30	24.00		180.08	24.00		0.00	0.00		100.00	24.00		519.35	24.00	1.84		232.53	24		92.05	24		519.35	24		1.36	
29-Sep-23	175.02	24.00		47.89	24.00		180.42	24.00		0.00	0.00		100.00	24.00		519.75	24.00	1.84		237.35	24		91.55	24		519.75	24		1.36	
30-Sep-23	175.07	24.00		48.01	24.00		180.80	24.00		0.00	0.00		100.04	24.00		518.79	24.00	1.84		210.08	24		90.50	24		518.79	24		1.36	

*Sampling date highlighted in blue.

** All cells in calculated columns are calculated based on same monthly sampling data

CVWD Mills PFOA Concentration Summary – September 2023

Date	Well 1 GPM	Hours	PFOA, ng/L	Well 7 GPM	Hours	PFOA, ng/L	Well 9 GPM	Hours	PFOA, ng/L	Mills Well 5 GPM	Hours	PFOA, ng/L	Mills Booster Pump Discharge, GPM	Hours	Calculated PFOA in effluent (forebay), ng/L	Sampled PFOA in effluent (forebay), ng/L	Paschall Discharge, GPM	Hours	Sampled PFOA in effluent (Paschall), ng/L	Williams Discharge, GPM	Hours	Sampled PFOA in effluent (Williams), ng/L	Calculated PFOA in effluent (Fairmount and Briggs), ng/L	Sampled PFOA in effluent (Fairmount and Briggs), ng/L
1-Sep-23	97.48	11.00		245.05	11.00		121.00	11.00		218.46	11.00		620.75	11.00	4.13		1233.45	11.00		1530.88	8.00		2.03	
2-Sep-23	97.09	11.00		244.55	11.00		120.97	11.00		225.67	11.00		623.75	11.00	4.14		1223.02	11.00		1408.30	3.00		1.98	
3-Sep-23	97.50	11.00		244.73	11.00		120.80	11.00		223.78	11.00		633.50	11.00	4.07		1223.52	11.00		1367.67	4.50		2.00	
4-Sep-23	97.50	10.50		244.76	10.50		120.73	10.50		225.25	11.00		623.75	11.00	4.00		1208.22	11.00		1396.11	5.00		2.01	
5-Sep-23	97.40	7.50		245.87	7.50		121.26	7.50		131.86	7.00		541.41	8.00	3.95		1196.26	8.00		1522.94	18.00		2.09	
6-Sep-23	98.02	11.00		244.33	11.00		120.84	11.00		127.81	11.00		546.50	11.00	4.19		1239.67	11.00		1547.61	3.50		1.92	
7-Sep-23	97.70	11.00		244.33	11.00		120.71	11.00		130.77	11.00		553.50	11.00	4.15		1231.93	11.00		1529.94	8.50		1.99	
8-Sep-23	97.43	11.00		244.51	11.00		120.84	11.00		132.42	11.00		553.25	11.00	4.16		1228.57	11.00		1542.80	9.50		2.00	
9-Sep-23	97.48	14.00		242.83	14.00		120.55	14.00		130.60	14.00		548.82	14.00	4.17		1225.36	14.00		1518.77	6.00		1.95	
10-Sep-23	97.77	11.00		243.93	11.00		120.67	11.00		131.77	11.00		549.50	11.00	4.18		1236.47	11.00		1565.66	8.50		1.99	
11-Sep-23	97.77	11.00	5.3	243.93	11.00	3.5	120.67	11.00	4.40	131.77	11.00	3.00	549.50	11.00	4.18	3.80	1236.47	11.00	0.98	1565.66	8.50	2.20	1.99	1.9
12-Sep-23	97.59	11.00		243.93	11.00		120.77	11.00		131.36	11.00		553.00	11.00	4.15		1234.62	11.00		1527.15	7.50		1.98	
13-Sep-23	98.09	11.00		244.69	11.00		120.97	11.00		134.08	11.00		553.25	11.00	4.18		1233.61	11.00		1570.66	8.50		1.99	
14-Sep-23	97.83	13.00		244.15	13.00		120.81	13.00		130.90	13.00		550.85	13.00	4.17		975.66	13.00		1521.93	7.50		2.07	
15-Sep-23	97.63	13.00		243.69	13.00		120.73	13.00		127.20	13.00		549.37	13.00	4.16		845.17	13.00		1497.09	9.50		2.14	
16-Sep-23	98.04	13.00		243.75	13.00		121.00	13.00		135.35	13.00		553.81	13.00	4.17		838.33	13.00		1508.05	8.50		2.14	
17-Sep-23	97.75	13.00		243.66	13.00		121.03	13.00		125.85	13.00		545.13	13.00	4.18		835.06	13.00		1481.12	5.50		2.13	
18-Sep-23	97.88	13.00		243.45	13.00		120.89	13.00		127.85	13.00		547.46	13.00	4.18		845.02	13.00		1552.40	7.50		2.13	
19-Sep-23	97.85	13.00		243.97	13.00		120.75	13.00		132.50	13.00		547.04	13.00	4.21		827.38	13.00		1447.21	12.00		2.15	
20-Sep-23	97.63	16.00		243.13	16.00		120.68	16.00		132.40	16.00		551.03	16.00	4.17		859.44	16.00		899.22	8.50		2.11	
21-Sep-23	98.20	12.50		245.41	12.50		121.09	12.50		131.56	12.50		550.63	13.00	4.03		857.55	13.00		1181.93	8.00		2.12	
22-Sep-23	97.66	15.50		242.66	15.50		120.54	15.50		133.40	15.50		550.35	15.50	4.17		859.95	15.50		810.56	15.50		2.12	
23-Sep-23	97.91	16.00		243.27	16.00		120.68	16.00		129.23	19.50		539.86	16.00	4.40		846.03	16.00		805.31	20.00		2.13	
24-Sep-23	97.34	16.00		242.52	16.00		120.46	16.00		129.84	20.50		549.48	16.00	4.36		845.57	16.00		1440.16	5.50		2.12	
25-Sep-23	97.64	16.00		242.53	16.00		120.41	16.00		129.80	16.00		546.39	16.00	4.18		852.52	19.50		1432.68	5.00		2.01	
26-Sep-23	97.92	6.50		244.64	12.50		120.95	6.50		128.20	6.50		550.46	6.00	6.07		848.71	10.50		1514.42	12.00		2.02	
27-Sep-23	97.80	10.00		245.12	10.00		121.66	10.00		130.65	10.00		556.33	10.00	4.14		1041.83	10.00		1494.89	13.50		2.09	
28-Sep-23	98.05	11.00		243.85	11.00		121.52	11.00		132.60	11.00		556.22	11.50	3.96		1041.83	11.10		1562.85	4.50		2.04	
29-Sep-23	98.43	10.00		246.48	10.00		121.87	10.00		132.21	10.00		552.48	10.00	4.19		1041.83	10.00		1216.34	13.00		2.08	
30-Sep-23	97.56	15.50		243.02	15.50		121.25	15.50		128.41	15.50		550.69	16.00	4.02		1041.83	15.60		1434.59	6.50		2.03	
Average	97.73	12.17	5.30	244.09	12.37	3.50	120.90	12.17	4.40	143.12	12.43	3.00	559.93	12.23	4.21	3.80	1041.83	12.47	0.98	1413.16	8.72	2.20	2.05	1.90

*Sampling date highlighted in blue.

** All cells in calculated columns are calculated based on same monthly sampling data

***Orange Cells contain Estimated data due to Water Meter being out for Service

CVWD Mills PFOS Concentration Summary – September 2023

Date	Well 1 GPM	Hours	PFOS, ng/L	Well 7 GPM	Hours	PFOS, ng/L	Well 9 GPM	Hours	PFOS, ng/L	Mills Well 5 GPM	Hours	PFOS, ng/L	Mills Booster Pump Discharge, GPM	Hours	Calculated PFOS in effluent (forebay), ng/L	Sampled PFOS in effluent (forebay), ng/L	Paschall Discharge, GPM	Hours	Sampled PFOS in effluent (Paschall), ng/L	Williams Discharge, GPM	Hours	Sampled PFOS in effluent (Williams), ng/L	Sampled PFOS in effluent (Fairmount and Briggs), ng/L	Sampled PFOS in effluent (Fairmount and Briggs), ng/L
1-Sep-23	97.48	11.00		245.05	11.00		121.00	11.00		218.46	11.00		620.75	11.00	1.09		1233.45	11.00		1530.88	8.00		0.97	
2-Sep-23	97.09	11.00		244.55	11.00		120.97	11.00		225.67	11.00		623.75	11.00	1.09		1223.02	11.00		1408.30	3.00		0.89	
3-Sep-23	97.50	11.00		244.73	11.00		120.80	11.00		223.78	11.00		633.50	11.00	1.07		1223.52	11.00		1367.67	4.50		0.92	
4-Sep-23	97.50	10.50		244.76	10.50		120.73	10.50		225.25	11.00		623.75	11.00	1.06		1208.22	11.00		1396.11	5.00		0.93	
5-Sep-23	97.40	7.50		245.87	7.50		121.26	7.50		131.86	7.00		541.41	8.00	1.04		1196.26	8.00		1522.94	18.00		1.07	
6-Sep-23	98.02	11.00		244.33	11.00		120.84	11.00		127.81	11.00		546.50	11.00	1.10		1239.67	11.00		1547.61	3.50		0.91	
7-Sep-23	97.70	11.00		244.33	11.00		120.71	11.00		130.77	11.00		553.50	11.00	1.09		1231.93	11.00		1529.94	8.50		0.98	
8-Sep-23	97.43	11.00		244.51	11.00		120.84	11.00		132.42	11.00		553.25	11.00	1.09		1228.57	11.00		1542.80	9.50		0.99	
9-Sep-23	97.48	14.00		242.83	14.00		120.55	14.00		130.60	14.00		548.82	14.00	1.10		1225.36	14.00		1518.77	6.00		0.93	
10-Sep-23	97.77	11.00		243.93	11.00		120.67	11.00		131.77	11.00		549.50	11.00	1.10		1236.47	11.00		1565.66	8.50		0.98	
11-Sep-23	97.77	11.00	1.8	243.93	11.00	0.83	120.67	11.00	0.98	131.77	11.00	0.82	549.50	11.00	1.10	0.89	1236.47	11.00	0.80	1565.66	8.50	1.20	0.98	1.9
12-Sep-23	97.59	11.00		243.93	11.00		120.77	11.00		131.36	11.00		553.00	11.00	1.09		1234.62	11.00		1527.15	7.50		0.96	
13-Sep-23	98.09	11.00		244.69	11.00		120.97	11.00		134.08	11.00		553.25	11.00	1.10		1233.61	11.00		1570.66	8.50		0.98	
14-Sep-23	97.83	13.00		244.15	13.00		120.81	13.00		130.90	13.00		550.85	13.00	1.10		975.66	13.00		1521.93	7.50		0.97	
15-Sep-23	97.63	13.00		243.69	13.00		120.73	13.00		127.20	13.00		549.37	13.00	1.09		845.17	13.00		1497.09	9.50		1.00	
16-Sep-23	98.04	13.00		243.75	13.00		121.00	13.00		135.35	13.00		553.81	13.00	1.10		838.33	13.00		1508.05	8.50		0.99	
17-Sep-23	97.75	13.00		243.66	13.00		121.03	13.00		125.85	13.00		545.13	13.00	1.10		835.06	13.00		1481.12	5.50		0.95	
18-Sep-23	97.88	13.00		243.45	13.00		120.89	13.00		127.85	13.00		547.46	13.00	1.10		845.02	13.00		1552.40	7.50		0.98	
19-Sep-23	97.85	13.00		243.97	13.00		120.75	13.00		132.50	13.00		547.04	13.00	1.11		827.38	13.00		1447.21	12.00		1.02	
20-Sep-23	97.63	16.00		243.13	16.00		120.68	16.00		132.40	16.00		551.03	16.00	1.10		859.44	16.00		899.22	8.50		0.93	
21-Sep-23	98.20	12.50		245.41	12.50		121.09	12.50		131.56	12.50		550.63	13.00	1.06		857.55	13.00		1181.93	8.00		0.96	
22-Sep-23	97.66	15.50		242.66	15.50		120.54	15.50		133.40	15.50		550.35	15.50	1.10		859.95	15.50		810.56	15.50		0.97	
23-Sep-23	97.91	16.00		243.27	16.00		120.68	16.00		129.23	19.50		539.86	16.00	1.16		846.03	16.00		805.31	20.00		0.99	
24-Sep-23	97.34	16.00		242.52	16.00		120.46	16.00		129.84	20.50		549.48	16.00	1.15		845.57	16.00		1440.16	5.50		0.93	
25-Sep-23	97.64	16.00		242.53	16.00		120.41	16.00		129.80	16.00		546.39	16.00	1.10		852.52	19.50		1432.68	5.00		0.91	
26-Sep-23	97.92	6.50		244.64	12.50		120.95	6.50		128.20	6.50		550.46	6.00	1.56		848.71	10.50		1514.42	12.00		1.05	
27-Sep-23	97.80	10.00		245.12	10.00		121.66	10.00		130.65	10.00		556.33	10.00	1.09		1041.83	10.00		1494.89	13.50		1.04	
28-Sep-23	98.05	11.00		243.85	11.00		121.52	11.00		132.60	11.00		556.22	11.50	1.04		1041.83	11.10		1562.85	4.50		0.94	
29-Sep-23	98.43	10.00		246.48	10.00		121.87	10.00		132.21	10.00		552.48	10.00	1.10		1041.83	10.00		1216.34	13.00		1.01	
30-Sep-23	97.56	15.50		243.02	15.50		121.25	15.50		128.41	15.50		550.69	16.00	1.06		1041.83	15.60		1434.59	6.50		0.93	

*Sampling date highlighted in blue.

** All cells in calculated columns are calculated based on same monthly sampling data

***Orange Cells contain Estimated data due to Water Meter being out for Service

CRESCENTA VALLEY WATER DISTRICT

**2700 FOOTHILL BOULEVARD
LA CRESCENTA, CALIFORNIA**

**To be held on
November 7, 2023 at 2:00 PM**

**Agenda for the Meeting of the Policy Committee
of the Crescenta Valley Water District**

Posted November 6, 2023 at 2:00 PM

TELECONFERENCING NOTICE

This meeting will be conducted in person at the address listed above. Members of the public may also participate virtually by using a touchtone phone. You may select any of the following phone numbers (there are more than one for increased reliability during this time of increase phone traffic).

**(669) 900-6833
(253) 215-8782**

**(346) 248-7799
(301) 715-8592**

**(929) 205-6099
(312) 626-6799**

Then, enter Access Code: 881 7888 1888

Those members of the public who are able to and would like to additionally participate with a computer through videoconference may access the Zoom videoconferencing tool available at the following link:

<https://us02web.zoom.us/j/88178881888>

If there is a disruption of service, this meeting will continue without remote participation. The remote participation option is provided a convenience to the public and is not required.

Any person may make a request for a disability-related modification or accommodation needed for that person to be able to participate in the public meeting by contacting the District by phone or in writing at customerservice@cvwd.com. Requests must specify the nature of the disability and the type of accommodation requested. A telephone number or other contact information should be included so that District staff may discuss appropriate arrangements. Persons requesting a disability-related accommodation should make the request with adequate time before the meeting for the District to provide the requested accommodation.

Call to Order

Adoption of Agenda

Public Comment:

At this time, members of the public shall have an opportunity to address the Committee on items of interest that are within the subject matter jurisdiction of this Committee. This opportunity is non-transferable, and speakers are limited to three (3) minutes each. Under the provisions of the Brown Act, the Board is prohibited from taking action on items not listed on the agenda, except under certain circumstances.

Action Item(s)

The public shall have an opportunity to comment on any action item as each item is considered by the Committee. This opportunity is non-transferrable, and speakers are limited to one two-minute (2) comment each.

1. Discuss the expansion of the District's Bill Assistance Program and associated revisions to the Rules and Regulations.
2. Discuss the creation of a District credit card policy.

Committee Members' Request for Future Agenda Items

Adjournment

CRESCENTA VALLEY WATER DISTRICT

POLICY COMMITTEE - STAFF REPORT

Information Item No. 1
November 7, 2023

To: Policy Committee
From: Arturo Montes – Finance and Administration Manager
Subject: **Expanded Bill Assistance Program**

INFORMATION ITEM:

Discuss the expansion of the Bill Assistance Program

BACKGROUND:

In August, staff presented the Committee with alternatives to adjust the District's Bill Assistance Program to better support customer needs. Currently, the program offers a 20% discount on water and wastewater bills for qualifying customers. The District budgets \$150K for this program, and on average \$47K in discounts are applied for. This program must be funded from non-rate revenues such as rental income, investment income, account fees, etc. Based on the recent implementation of the capital charge on the property roll, the District committed to updating its program to also assist those who may be significantly impacted by the additional charge.

The Committee directed staff to present an expanded Bill Assistance Program that would reflect: 1) higher income limits for qualification; 2) an increased discount factor; and 3) the inclusion of the recently implemented capital charge within the bill assistance program. Staff presented the Finance Committee with a program including these updates at the October 9, 2023, Finance Committee meeting. Following discussion, the Finance Committee directed staff to present the Policy Committee with an expanded Bill Assistance program that incorporated the following changes–

1. *Amendment 1:* Increase the income levels from 200% of the Federal Poverty Guidelines to 250%;
2. *Amendment 2:* Increase current assistance from a 20% to a 25% discount on the combined bill for water, wastewater, and/or wastewater standby charges; and
3. *Amendment 3:* Include a discount of 25% of the capital charge for owner-occupied accounts that meet program qualifications.

DISCUSSION:

Staff has analyzed current data available and summarized the potential budget impacts of amending the Bill Assistance program. In total, staff projects a minimum increase of \$28K to the District's expense budget, which leaves adequate room for additional subscriptions to the program:

1. *Amendment 1:* The effect on the budget is unknown based on current data;
2. *Amendment 2:* Increasing from 20% to 25% will result in an increase of approximately \$12k based on current enrollment in the Bill Assistance Program; the actual impact may be higher with higher income levels; and
3. *Amendment 3:* If all current enrollees of the Bill Assistance Program who are also owners are provided a 25% discount on the capital charge ($\$196 * 25\% = \44), then an estimated \$8K of credits would be applied to their bills.

The following supplemental information is enclosed for reference and discussion –

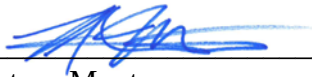
1. *Attachment 1* – Section 8.03.E of the District’s Rules and Regulations has been updated to reflect the changes listed above. The original copy is redlined for ease of reference.
2. *Attachment 2* - The Bill Assistance Program application is also updated, also redlined for ease of reference.

Staff will discuss with and seek direction from the Policy Committee, after which the proposed updates to this program will be presented to the Board for approval.

RECOMMENDATION

Direct staff on the next steps for modification of the expanded Bill Assistance Program

Prepared and Submitted by:



Arturo Montes
Finance & Administration Manager

Attachment(s): 1) Section 8.03.E of the Districts Rules and Regulations; 2) Bill Assistance Program Application

g:\management\policy committee\20231107 PC packet\11-07-23 - PC Memo - Bill Assistance Program

Low-Income Discount Bill Assistance Program: A ~~low-income~~ residential customer of the District who resides on the property and who ~~has been~~ is the named account holder on the records of the District ~~for the prior six months~~ is may be eligible for a 2025 percent discount on the combined bill for water, wastewater and/or wastewater standby charges on the capital charge if they meet the qualifications below:

1. ~~"Low-income" means~~ The customer must ~~meets~~ either of the following conditions, which are modeled after Southern California Edison's CARE program to qualify for the Bill Assistance Program.

a. The customer or any dependent member of the household receives benefits from any of the following programs (must provide proof)

- Bureau of Indian Affairs General Assistance
- CalFresh (Food Stamps)
- CalWORKs (TANF)/ Tribal TANF
- Head Start Income Eligible (Tribal Only)
- CARE Program (Gas Company)
- Low Income Home Energy Assistance Program (LIFEAP)
- Medi-Cal/Medicaid
- Medi-Cal for Families
- National School Lunch Program
- California Lifeline (Phone Company)
- Supplemental Security Income (SSI)
- Women, Infants & Children (WIC)

b. Total income for all members in the household meets the guidelines listed below. "Income" means all income received in the prior calendar year, including but not limited to social security, interest income, salaries, wages, pensions, rents, commissions, and capital gains. Proof of total household income includes federal and state income tax returns for the prior year, or if no tax return was filed, other proof of total household income satisfactory to the District.

Household Size	Income Eligibility Upper Limit
1-2	\$39,440 <u>49,300</u>
3	\$49,720 <u>62,150</u>
4	\$60,000 <u>75,000</u>
5	\$70,280 <u>87,850</u>
6	\$80,560 <u>100,700</u>
7	\$90,840 <u>113,550</u>
8	\$101,120 <u>126,400</u>
Each Additional Person	\$10,280 <u>12,850</u>

* Information is based on federal poverty guidelines and updated annually on July 1.

2. The discount becomes effective for the first full billing period following approval of an application in a form prescribed by the District. Applicants must sign the form under penalty of perjury and must furnish proof of eligibility as listed above.
3. Decisions on any questions concerning eligibility for the discount shall be made by the General Manager. Applicants shall have the right to appeal adverse determinations to the Board of Directors. Appeals shall be in writing and delivered to the District within 10 days following the General Manager's decision.
4. Once an application is approved, the Customer shall receive ~~a 20 percent~~ the eligible discount on future bills as long as the Customer continues to be eligible. The ~~2025~~ percent discount applies to wastewater charges, all service charges, and the first 26 billing units of water per billing cycle, ~~and~~ to the capital charge assessed in November and March. Usage over 26 billing units of water per billing cycle will be billed at standard rate. It shall be the duty of the Customer to advise the District if the Customer becomes ineligible for the discount. The Customer must reapply for the discount every two years to retain eligibility.
5. This program may be modified without prior notice. When the program is modified, current program recipients will remain eligible until the time of their recertification. During the recertification process, the customer's eligibility will be based on current requirements at the time of recertification.
6. This program is on a first-come-first-serve basis limited to annual budgeted funding.
 - a. When funding limits have been reached, applicants will be placed on a waiting list based on the order in which applications were received. If the program is closed due to funding limits, current members will be notified of recertification requirements and due dates. If a customer does not recertify within the allotted time, they will need to reapply and join the waiting list.



CVWD BILL ASSISTANCE PROGRAM

For Fiscal Year 2023-24

Attachment 2

☐ First Time Applicant ☐ Reapply (required every 2 years)

1. CUSTOMER INFORMATION

Account Name:

Address:

Email Address:

CVWD Account Number:

Daytime Contact Name:

Phone: ()

2. OTHER RESIDENTS LIVING IN THE HOME

Name:

Age:

Name:

Age:

Name:

Age:

Name:

Age:

Name:

Age:

3. PUBLIC ASSISTANCE PROGRAMS BENEFITS RECEIVED

If you or ~~someone in your household~~ one of your dependents receives benefits from any of the programs listed below, please check the box and **provide a current** copy of your **Verification of Benefits Letter or other proof** of enrollment for programs checked. If you checked one of the boxes below, **Skip section 4 & 5 and go to Section 6.**

☐ Medi-Cal/Medicaid

☐ Medi-Cal for Families

☐ CalFresh (Food Stamps)

☐ WIC

☐ CalWORKs (TANF)

☐ CARE Program (SoCalGas)

☐ Bureau of Indian Affairs G.A.

☐ LIHEAP

☐ SSI

☐ California Lifeline (phone)

☐ National School Lunch Program (NSLP)

If NONE of the above apply to you, please complete section 4 below.

4. SOURCE OF INCOME (Skip if you completed Section 3)

Please check the appropriate box for all sources of income for all persons in your household and **provide copies of current documents** for all sources checked below. Read page 2 for more information.

☐ SSA, SSP, SSDI

☐ Wages or Salaries

☐ Interest, Dividends, Annuities

☐ Pensions

☐ Unemployment Benefits

☐ Rental or Royalty Income

☐ Family Support

☐ Workers Compensation

☐ Profit and Loss Statement

☐ Spousal or Child Support

☐ Scholarships, Grants

☐ Cash or other income

5. HOUSEHOLD INCOME (Please fill in the total household income)

The total number of ~~residents living~~ persons in my ~~home~~ family/household, including myself is:

The total gross annual household income is:

\$

INCOME ELIGIBILITY GUIDELINES

Number of Household Members	Maximum Gross Annual Income
1-2	\$39,440 \$49,300
3	\$49,720 \$62,150
4	\$60,000 \$75,000

6. DECLARATION (Please read and sign below)

I certify under penalty of perjury that the information I have provided is true and correct. I agree to inform CVWD within 30 days if I no longer qualify to receive the discount. I understand that if I received this discount without qualifying for it, I may be required to pay back the discount I received.

CVWD CUSTOMER SIGNATURE

Date

CVWD BILL ASSISTANCE INFORMATION SHEET

CVWD 's Bill Assistance Program provides low-income households a ~~20~~ 25 percent discount on the combined bill for water (up to 26 billing units of water), wastewater and/or wastewater standby charges, and on the capital charge. There are two ways to qualify for the discount: If you receive any of the Public Assistance Programs listed in the application or if your total income for all persons in your household meets the income eligibility guidelines chart. The discount will be applied once your completed and signed application is approved by CVWD. Please allow at least 30 days for processing your application.

CONDITIONS FOR PARTICIPATING

- ~~• Applicant must be the primary account holder and have been on the account for six months~~
- Name on CVWD account must match the name on this application and must be a full time household resident.
- You must not be claimed as a dependent on another person's income tax return.
- You must re-certify when requested.
- You must reapply and provide Verification of Benefits Letter each time you move.
- You must provide current documentation or your application will not be processed.

CURRENT SOURCE OF INCOME & PUBLIC ASSISTANCE INFORMATION

Provide copy of your **current Verification of Benefits Letter** for Medi-cal, CalFresh, CalWORKs (TANF). These forms are available from the Department of Public Social Services (DPSS) at (818)701-8200.

WIC- Provide current verification of WIC Participation letter.

CARE Program (SoCalGas) - Provide copy of current first page of gas bill that shows Care Program discount.

California Lifeline (Telephone) - Provide current first page of California Lifeline bill that shows the discount.

Medi-Cal for Families - Provide a current Medi-Cal statement.

LIHEAP - Provide current approval letter for the program.

National School Lunch Program (NSLP) - Provide current document showing your enrollment in the program.

SSI and/or SSA - Provide a document showing your current monthly benefit amount with current address from the Social Security Administration. You can request the letter by contacting Social Security Office at (800) 772-1213.

Pension, Annuity, Scholarship, Grant, Rental or Royalty Income- Provide current copy of your statement.

Wages or Salaries - Provide most recent four consecutive pay stubs. You may provide a letter from your employer stating your monthly gross income. We can also accept tax returns/forms and bank statements.

Unemployment Benefits - Provide a copy of the first page of the unemployment letter from the Employment Development Department (EDD).

Zero Income - Provide Verification of Benefits Letter indicating zero income from the Department of Public Social Services(DPSS). If you are over the age of fifty, please contact the Social Security Office to obtain a Zero Income letter.

Cash and other income - Provide a letter from your employer stating your current monthly gross income if you receive cash.

This program may be modified without prior notice. When the program is modified, current program recipients will remain eligible until the time of their recertification. During the recertification process, the customer's eligibility will be based on current requirements at the time of recertification.

This program is on a first-come-first-serve basis limited to annual budgeted funding. When funding limits have been reached, applicants will be placed on a waiting list based on the order in which applications were received.

Please email application and copies of supporting documents to customerservice@CVWD.com or mail to:

Crescenta Valley Water District
2700 Foothill Blvd.
La Crescenta, CA 91214
(818) 248-3925
www.cvwd.com

CRESCENTA VALLEY WATER DISTRICT

POLICY COMMITTEE - STAFF REPORT

Information Item No. 2
November 7, 2023

To: Policy Committee
From: Arturo Montes – Finance and Administration Manager
Subject: Credit Card Policy

INFORMATION ITEM:

Discuss the creation of a credit card policy

BACKGROUND:

The District uses credit cards to facilitate purchases, streamline payments, and earn cash-back discounts. BMO Purchasing Cards are used by the District to earn cash back on all purchases and services, including payment of invoices. The District also uses merchant credit cards if the rewards offered are greater than those of BMO Purchasing Cards.

Best practices recommend that agencies establish policies that have three major components. A credit card policy should dictate who in the agency will oversee the credit card program, who can use the credit cards, and what purchases can or cannot be made with the credit cards.

DISCUSSION:

The goal of this policy is to establish a set of guidelines by which the District's credit cards can be used. The policy includes many standards used as best practices by other governmental agencies, including the State of CA. The Director of Finance and Administration will be the administrator of the credit card program and will be responsible for upholding these policies. A few of the highlighted provisions of the policy include:

1. The cards should only be used for official district business and forbid personal purchases;
2. The policy also forbids the use of credit cards for items such as alcohol, controlled substances, and tobacco products; and
3. The policy establishes reporting guidelines including requirements for lost receipts.

Staff has created the draft Credit Card policy attached for the Committee's review.

RECOMMENDATION

Direct staff on the next steps for the adoption of a credit card policy.

Prepared and Submitted by:



Arturo Montes
Finance & Administration Manager

Attachment(s): 1) Credit Card Policy; 2) Missing Receipt Form

District Credit Card Policy

Purpose

To establish the issuance, accounting, monitoring, retrieval, and general oversight of the credit card use policy for the District. Credit cards are provided as a matter of convenience to facilitate the payment of expenses incurred for District business purposes only.

In the course of its business operations, the Crescenta Valley Water District may provide certain employees with a credit card as needed according to position responsibilities. The credit card is to be used exclusively for District business. These credit cards are not to be used for personal purchases of any kind. Violations of this policy will result in the loss of the privilege of having a credit card, and discipline up to and including termination. To ensure proper fiscal accountability, the following rules have been established for employee use of credit cards.

Policy

1. The Director of Finance and Administration is designated to be responsible for the District's credit card issuance, accounting, monitoring, retrieval, and general oversight of compliance with this credit card use policy.
2. Cardholders will be required to sign the Credit Card Policy, indicating that they accept the terms of this policy and thereby agreeing to abide by the adopted District Credit Card Policy. The cardholder is responsible for assuring that all credit card charges are accurate and consistent with policy guidelines.
3. Use of the card may be delegated to staff within the same department as the assigned employee under the department manager's approval.
4. District credit cards may be used only by those authorized and only for the purchase of goods or services for the official business of the District. District credit cards may not be used for personal purchases.
5. MAXIMUM INDIVIDUAL EXPENDITURE: District credit cards may be used for individual purchases up to \$5,000. Purchases exceeding this amount must have advance approval from the Director of Finance and Administration before incurring the expenditure.
6. Purchases made via the credit card must comply with the District's Policies. Credit cards should not be used to circumvent the normal system of internal controls.
7. Items that cannot be purchased with a District credit card include:
 - Cash advances;
 - Alcoholic beverages;
 - Tobacco/ Marijuana/ Vape products;
 - Controlled Substances; and
 - Items deemed inconsistent with the District's values.
8. All rewards or points earned from purchases made for District business on District credit cards will be the property of the District and may only be redeemed for District business needs.
9. For travel expenses, the Credit Card issued by the District should be used. In all instances, the District's Travel Policy and Procedures should be followed.

10. All authorized users of District credit cards shall submit documentation detailing the goods or services purchased, the cost of the goods or services, the date of the purchase, and the official business for which it was purchased.
11. If a receipt for a credit card purchase is lost a missing receipt form must be completed and submitted to the Director of Finance and Administration.
12. It is the policy of the District that payments should be processed in a timely manner so as not to incur late fees or finance charges. Each employee who receives a monthly statement is personally responsible for ensuring that the statements and the approved authorizations are received by the District's Finance and Administration Office at least 10 working days prior to the published payment due date. Repeated late fees or finance charges on the account may result in the loss of the employee's credit card privileges.
13. Upon employee separation or termination of employment, that employee shall immediately return the credit card to the Director of Finance and Administration. The Director of Finance and Administration will immediately cancel the card with the issuer.
14. An authorized employee, who is issued a credit card is responsible for its protection and custody and shall immediately notify the bank card issuer, his/her supervisor, and the Director of Finance and Administration if the credit card is lost or stolen.
15. Finance and Administration will follow established Accounts Payable internal control procedures for approval, documentation, and payment of credit card charges.
16. The Director of Finance and Administration may close the credit card account if a cardholder separates from District employment, moves to a new position in which a credit card is not required, the cardholder fails to provide the required receipts and supporting documentation in a timely manner resulting in late fees, or the cardholder does not adhere to District policies and procedures.
17. Unauthorized use of a District credit card shall result in disciplinary measures to the fullest extent of the law.
18. EXCEPTIONS: No exception may be made to this policy without the written consent of the Director of Finance and Administration.

I have received and read this policy and agree to comply with its terms.

Signature

Date

Missing Receipt Form

The cardholder/ Approving official must fill out form below:

Date of Purchase/Service: _____

Supplier Name: _____

Description of Purchase: _____

Quantity Purchased: _____

Dollar Amount: _____

Reason you were unable
obtain receipt: _____

Date: _____

Cardholder Name: _____ Signature: _____

This form should be used only occasionally. Excessive use of this form may result in loss of the employee's corporate credit card privileges

Approved:

Date: _____

Director of Finance and Administration

Engineering Report

November 14, 2023

Staff Report

To: Honorable President and Members of the Board of Directors
From: Brook Yared, M.S., P.E. – Interim Director of Engineering & Operations
Subject: **Engineering Report – October 2023**

1. Water Production Report

- October 1 – 31 – Water production – 47%/53% split – 105.6 MG for the month
- Average use – 2.7% less than 2022 and 11.7% less than 5-yr average

• **Rainfall Update**

- 0.06” for October 2023
- Rainfall Total for WY 2023/24 – 0.06”

• **Engineering Update - Water**

• **FY 23/24 Capital Improvement Project**

- Goss Canyon #2 Reservoir Rehabilitation
 - Construction beginning in early December 2023
- Well 14
 - Pump installed on November 2, 2023
 - Series samples taken November 8, 2023
- Paschall Booster B
 - Rental pump and motor scheduled installation week of October 3, 2023
 - New Vertical Turbine Pump and Motor Assembly Installation – Pending approval of Annual Pump and Well Contract
- Conversion to Chloramination
 - Investigating demonstration options
- GIS Review, week of November 13, 2023
- Ramsdell Mixing Station/Pressure Reducing Station – Above ground temporary PRV option under review
- LADWP-CVWD Emergency Interconnection

• **FY 22/23 Capital Improvement Project**

- 2600 & 2700 Blocks of Orange Ave
 - Negotiating paving costs and rock removal change orders
- Edmund No. 2 (E-1036)
 - Warranty Repairs – November 13, 2023

• **3000 & 3100 Blocks of Montrose Ave (E-1067)**

- Preconstruction Meeting – November 9, 2023
- Construction Beginning Week of November 13, 2023
- Material Delivery – November 16, 2023

• **Rosemont Overcrossing Repairs (E-1070)**

- Construction complete November 9, 2023
- Inspection of additional Overcrossings
 - La Crescenta Ave.
 - Ramsdell Ave.
 - Briggs Ave.
 - Ocean View Ave.

- **Transfer of Services to Glendale Water and Power (E-1051)**
 - Transfer of Services on Frederick and Thelma (1929) to Glendale Water and Power to avoid capital replacement
 - Work is planned to begin with Glendale in December 2023
- **AMI Customer Engagement Portal**
 - Approximately 7,075 radios and lids to install/replace
 - Currently 119 customers are waiting to be configured for the Customer Engagement Platform
 - 356 are active on the Customer Engagement Platform
 - 160, ¾ & 1-inch meters including laterals to replace
- **Replacement of Supervisory Control and Data Acquisition (SCADA) System**
 - Project Schedule – April 2022 to April 2024
 - Sites Completed
 - Wells 5, 7, 8, 9, 11, 14 & 16, Ramsdell Mixing Station, Glendale/CVWD Interconnection, Glenwood Plant with Wells 6, 10, 12 & 15, Mills Plant, Encinal Reservoir, Ordunio Reservoir/Nitrate Removal Plant, Well 2 Controls Update, Ocean View, Paschall, Oak Creek, Eagle Canyon, Markridge, Cresta Heights
 - Sites Pending Integration (2023/24)
 - Edmund II
 - Dunsmore
 - Shields
- **Well 2**
 - Developing permit amendment for a bypass option to avoid repairs to the Biological Nitrate Removal Facility.
- **Engineering Update - Wastewater**
 - Wastewater Master Plan
 - Finalizing Hydraulic Model
- **Grant Program**
 - USBR Small-Scale Water Efficiency Grant 2022 – 3” & 4” Meters – Deadline extended, lid modification materials pilot testing
 - USBR Small-Scale Water Efficiency Grant 2022 – 1-½-inch Meters – Ordering materials
 - Cal OES – New emergency generators and seismic feasibility study – Pending funding availability
 - Water Recycling Grant – Application submitted July 10, 2023
 - Carl Moyer Grant – New Dump Truck, transitioned to SCAQMD SOON program for additional funding
 - Stormwater Capture Project at Crescenta Valley County Park – No report
- **Developer Projects**
 - On hiatus
 - 2434 Foothill – New 31 Units
 - 2341 Mira Vista – New 4 Units
 - 3037/3043 Foothill – Pending Special Contract Completion
 - 4360 Ocean View – 7 units – Pending Reconciliation and Transfer

- 4521 Briggs/2413 Foothill – New 81 units
- **FMWD**
 - Westside Agencies Meeting – Cathodic Protection
 - February Shutdown Preparation

CRESCENTA VALLEY WATER DISTRICT

WATER PRODUCTION REPORT

October 1 - October 31, 2023

Well Production:	50,505,300	Gals		
GWP Production:	4,309,000	Gals		
Gravity Production:	1,460,662	Gals	% GW	53%
FMWD:	49,345,268	Gals		
City of Glendale:	0	Gals	% Import	47%
TOTAL:	105,620,230	Gals		
	324.14	ac-ft		

Glenwood Nitrate Water

Reclamation Plant:*

0

*Included in Well Production

WATER DEMAND COMPARISON

Time Period	Average Daily Usage (gals)	Current Period Change
October 1 - October 31, 2023	3,287,078	
October 1 - October 31, 2022	3,377,326	-2.7%
5-yr Average - October 2018 - 2022	3,723,958	-11.7%

RAINFALL: October 1 - 31, 2023

0.06"

Season-To-Date:

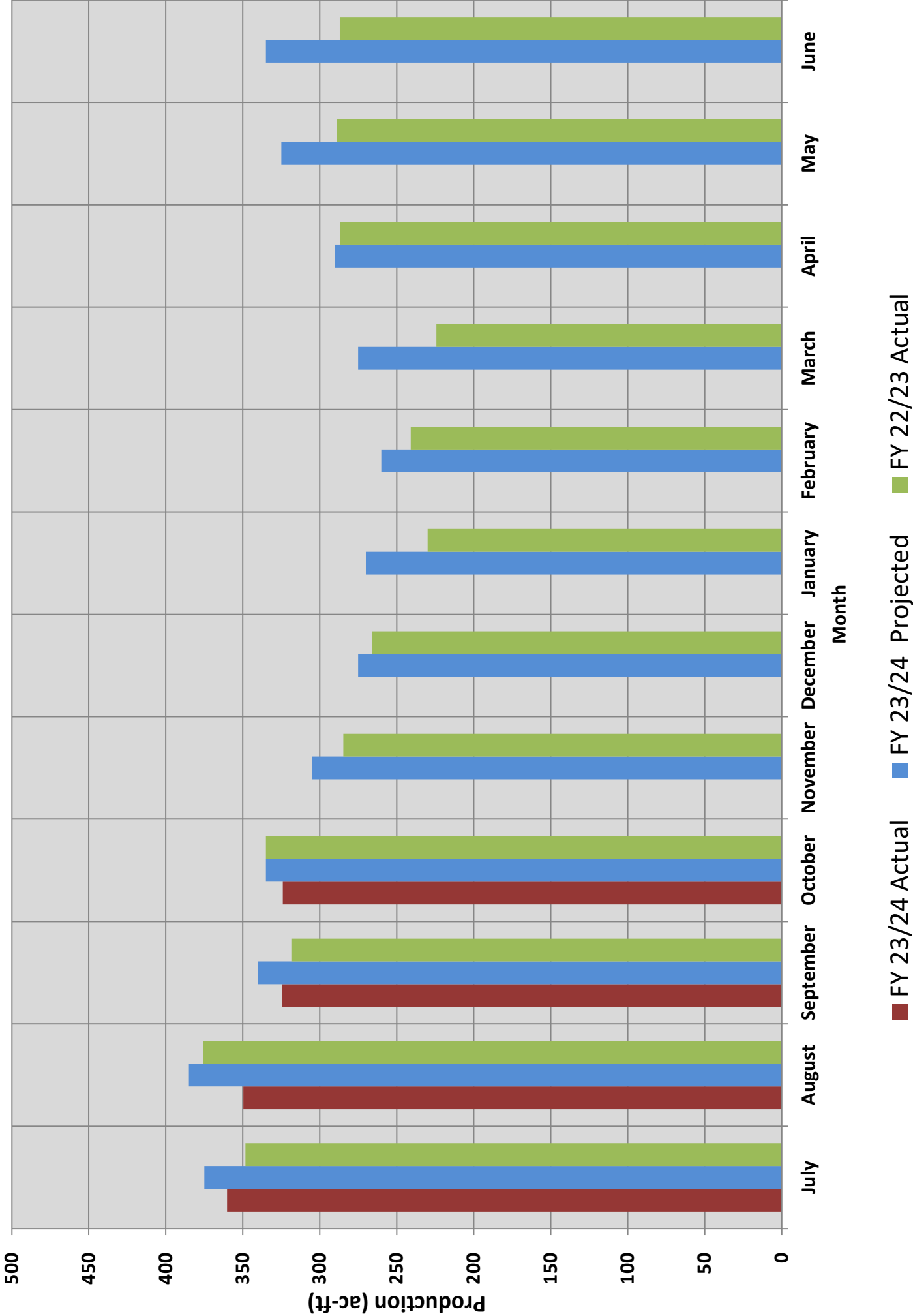
0.06"

2023/24 Fiscal Year Water Production			WY 23/24 - Groundwater Production Water Rights		GWP (Well 16) Water Production - 2023		Purchased Water Production Tier 2 Allocation 2023	
Month	Actual Total Water Production (ac-ft)	Projected Total Water Production (ac-ft)	Month	Month	Month	Well Production (ac-ft)	Month	Imported Water Production (ac-ft)
July	360	375	October	160	January	13	January	74
August	350	385	November		February	13	February	92
September	324	340	December		March	14	March	67
October	324	335	January		April	13	April	94
November		305	February		May	14	May	105
December		275	March		June	14	June	106
January		270	April		July	14	July	178
February		260	May		August	14	August	197
March		275	June		September	14	September	165
April		290	July		October	13	October	151
May		325	August		November		November	
June		335	September		December		December	
Total to Date	1,358	1,100	Total to Date	160	Total to Date	136	Total to Date	1,229
Projected	3,704	3,770	Water Rights	3,294			Tier 2	2,154
% of Projected	36.0%	29.2%	% of Rights	5%			% of Allocation	57%
Remaining	2,412	2,670	Remaining	3,134			Remaining	925

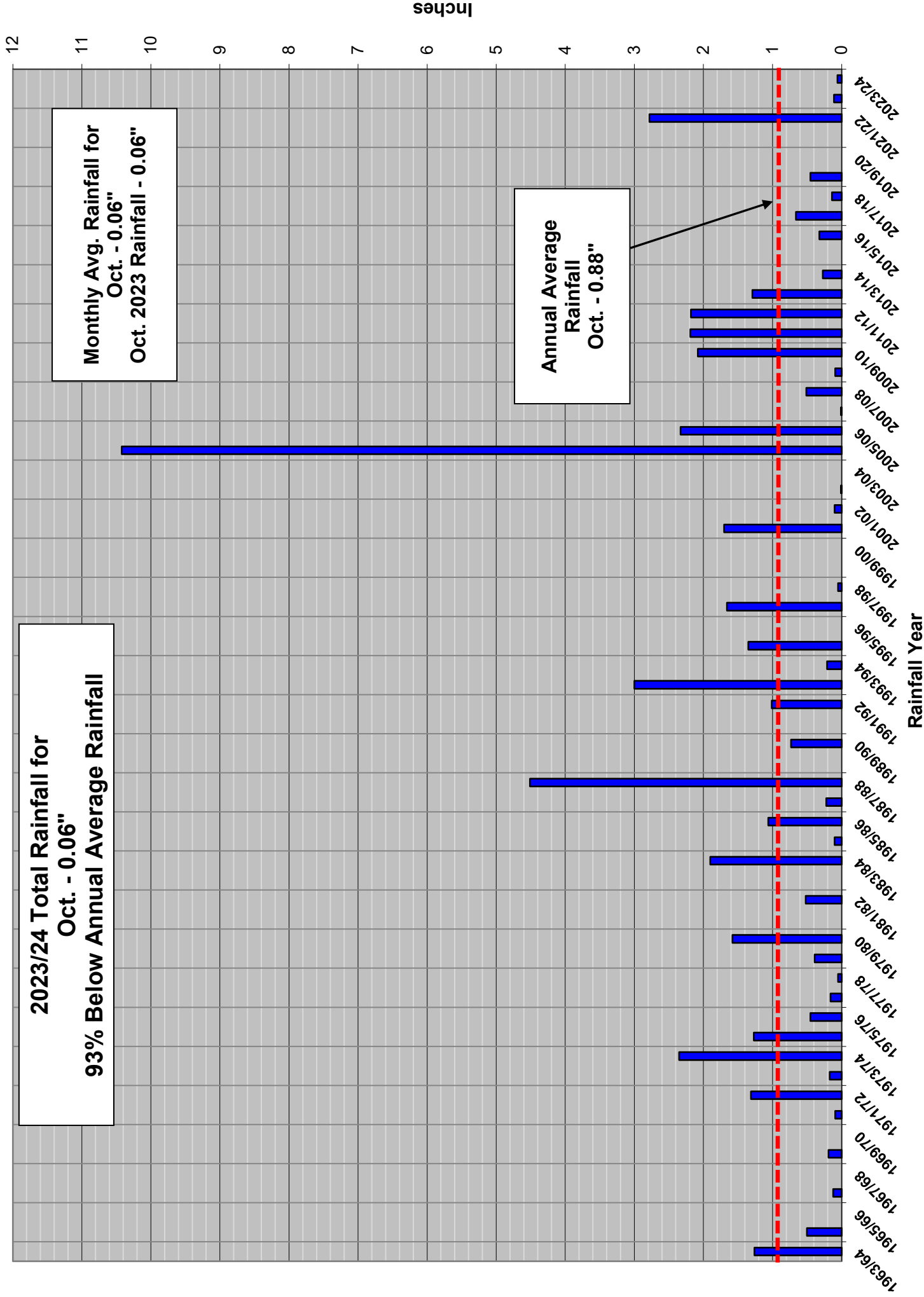
NOTE:

1) Blue Numbers = Estimated Water Production

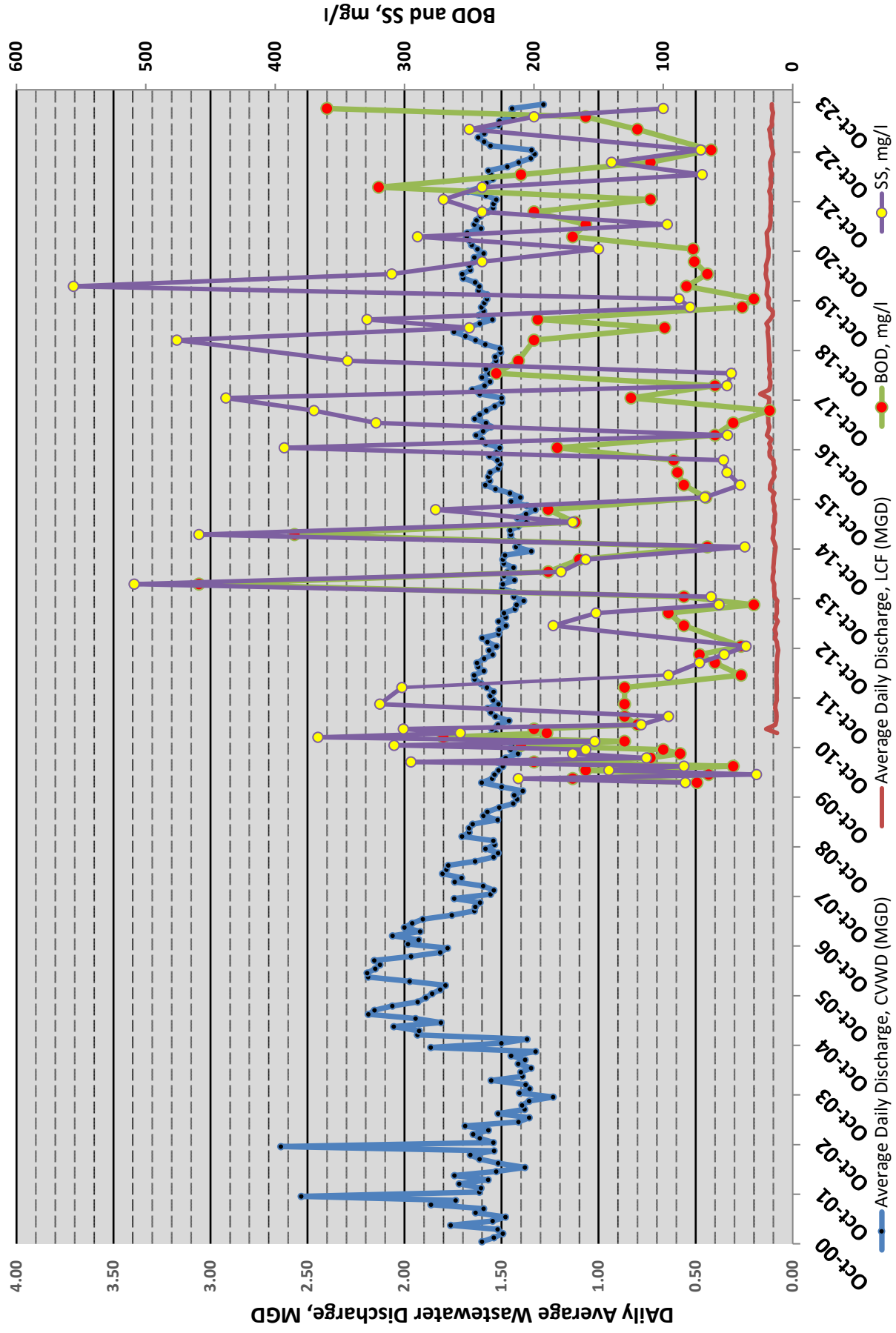
Monthly Water Production: FY 23/24 Actual, FY 23/24 Projected & FY 22/23 Actual



Monthly Rainfall - 1963/64 - 2023/24 (Oct. 1 - Oct. 31)



CVWD Daily Average Wastewater Discharge and Strength October 1, 2000 - September 30, 2023



CRESCENTA VALLEY WATER DISTRICT

**2700 Foothill Boulevard
La Crescenta, California**

Agenda for the
Rate and Governance Workshop
To be held on November 8, 2023 at 5:30 p.m. at the

La Crescenta Library Community Room
2809 Foothill Blvd
La Crescenta, CA 91214

Posted: November 7, 2023 at 4:00 pm.

Any written materials distributed to the Board in connection with this agenda will be made available at the same time for public inspection at the District office located at the above address.

Call to Order

Adoption of Agenda

Action Calendar

The public shall have an opportunity to comment on any action item as each item is considered by the Board prior to action being taken. This opportunity is non-transferable and speakers are limited to one two (2) minute comment.

1. **Rate Study Pricing Objectives** – Presentation and discussion to develop pricing objectives related to the upcoming water and wastewater rates study.
2. **Board Compensation** – Discussion regarding possible updates to Board compensation.
3. **Board Open Discussion** – Discussion regarding Board member roles and responsibilities, availability, etc.

Adjournment